

[illegible]

```
MM      MM      MM      MM      GGGGGGGG      CCCCCCCC      RRRRRRRR      DDDDDDDD      LL      SSSSSSSS      PPPPPPPP
MM      MM      MM      MM      GGGGGGGG      CCCCCCCC      RRRRRRRR      DDDDDDDD      LL      SSSSSSSS      PPPPPPPP
MMMM    MMMM    MMMM    MMMM    GG          CC          RR          DD          LL      SS          PP          PP
MMMM    MMMM    MMMM    MMMM    GG          CC          RR          DD          LL      SS          PP          PP
MM      MM      MM      MM      GG          CC          RR          DD          LL      SS          PP          PP
MM      MM      MM      MM      GG          CC          RRRRRRRR      DD          LL      SSSSSS      PPPPPPPP
MM      MM      MM      MM      GG          CC          RRRRRRRR      DD          LL      SSSSSS      PPPPPPPP
MM      MM      MM      MM      GG      GGGGGG      CC          RR      RR      DD          LL      SS          PP
MM      MM      MM      MM      GG      GGGGGG      CC          RR      RR      DD          LL      SS          PP
MM      MM      MM      MM      GG          CC          RR      RR      DD          LL      SS          PP
MM      MM      MM      MM      GG          CC          RR      RR      DD          LL      SS          PP
MM      MM      MM      MM      GG      GGGGGG      CC          RR          DD          LL      SS          PP
MM      MM      MM      MM      GG      GGGGGG      CC          RR          DD          LL      SS          PP
MM      MM      MM      MM      GG          CC          RR          DD          LL      SS          PP
MM      MM      MM      MM      GG          CC          RR          DD          LL      SS          PP
MM      MM      MM      MM      GGGGGG      CCCCCCCC      RR          DD          LLLLLLLLLL      SSSSSSSS      PP          ....
MM      MM      MM      MM      GGGGGG      CCCCCCCC      RR          DD          LLLLLLLLLL      SSSSSSSS      PP          ....
                                     ....
                                     ....
                                     ....
                                     ....

LL      IIIIII      SSSSSSSS
LL      IIIIII      SSSSSSSS
LL      II          SS
LL      II          SS
LL      II          SS
LL      II          SS
LL      II          SSSSSS
LL      II          SSSSSS
LL      II          SS
LL      II          SS
LL      II          SS
LL      II          SS
LLLLLLLLLLLL      IIIIII      SSSSSSSS
LLLLLLLLLLLL      IIIIII      SSSSSSSS
```

(2)	48	DECLARATIONS
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(8)	918	MISCELLANEOUS SUBROUTINES



```

0000 1  :
0000 2  :
0000 3  :
0000 4  :
0000 5  :
0000 6  :
0000 7  :
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0000 45 :
0000 46 :

                                MEMORY MANAGEMENT SERVICES TEST #1

.TITLE  MMGCRDLSP - TEST OF $CRETVA/$DELTVA/$SETPRT SYSTEM SERVICES
.IDENT  'V04-000'

*****

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FACILITY: USER MODE MEMORY MANAGEMENT SERVICES TEST
ABSTRACT: THIS SET OF ROUTINES TESTS THE MEMORY MANAGEMENT SERVICES
ENVIRONMENT: USER MODE DIAGNOSTIC
AUTHOR: PETER H. LIPMAN          , CREATION DATE: 6-JAN-77
MODIFIED BY:
          V02-012 SHZ0009          Stephen Zalewski          20-Aug-1980
          Added further tests to system services tested in this
          program. Also incorporated program into MMG test
          package.

```

```
0000 48      .SBTTL  DECLARATIONS
0000 49      :
0000 50      : INCLUDE FILES:
0000 51      :
0000 52      : .SBTTL  MACROS
0000 53      :
0000 54      : MACROS:
0000 55      :
0000 56      .MACRO  LIST
0000 57      .LIST   MEB
0000 58      .ENDM   LIST
0000 59
0000 60      .MACRO  NLIST
0000 61      .NLIST  MEB
0000 62      .ENDM   NLIST
0000 63
0000 64      .MACRO  READ  SIZ=#1,ADR=(R2),?L1,?L2
0000 65      IFNORD  <SIZ>,<ADR>,L1
0000 66      BRB     L2
0000 67 L1:      MOVAL  W^READERR,R1
0000 68      BSBW    PROBERR
0000 69 L2:
0000 70      .ENDM   READ
0000 71
0000 72      .MACRO  WRITE SIZ=#1,ADR=(R2),?L1,?L2
0000 73      IFNOWRT <SIZ>,<ADR>,L1
0000 74      BRB     L2
0000 75 L1:      MOVAL  W^WRITERR,R1
0000 76      BSBW    PROBERR
0000 77 L2:
0000 78      .ENDM   WRITE
0000 79
0000 80      .MACRO  NOREAD SIZ=#1,ADR=(R2),?L1
0000 81      IFNORD  <SIZ>,<ADR>,L1
0000 82      MOVAL  W^NOREADERR,R1
0000 83      BSBW    PROBERR
0000 84 L1:
0000 85      .ENDM   NOREAD
0000 86
0000 87      .MACRO  NOWRITE SIZ=#1,ADR=(R2),?L1
0000 88      IFNOWRT <SIZ>,<ADR>,L1
0000 89      MOVAL  W^NOWRITERR,R1
0000 90      BSBW    PROBERR
0000 91 L1:
0000 92      .ENDM   NOWRITE
0000 93
0000 94      .MACRO  CRETVA STARTVA,ENDVA,STATUS=S^#SS$ NORMAL,-
0000 95      LIST      INADR=W^INRANGE,RETADR=W^RETRANGE
0000 96
0000 97      .IF      NB,STARTVA
0000 98      MOVL     STARTVA,W^INRANGE
0000 99      .ENDC
0000 100     .IF      NB,ENDVA
0000 101     MOVL     ENDVA,W^INRANGE+4
0000 102     .ENDC
0000 103     MOVZWL   STATUS,R3
0000 104     MOVAL     INADR,R0
```

```
0000 105          MOVAL  RETADR,R1
0000 106          BSBW   CRETVA$UBR
0000 107          NLIST
0000 108          .ENDM  CRETVA
0000 109
0000 110          ;*****
0000 111          ; THIS MACRO DELETES THE CURRENT VA ADDRESSES.  ALSO HIDDEN IN THIS
0000 112          ; MACRO IS A TEST TO SEE IF A DELETE GLOBAL SECTION MUST ALSO BE
0000 113          ; INVOKED.  THIS OCCURS DURING THE SECOND AND THIRD RUNS OF THE TEST
0000 114          ; PROGRAM WHEN GLOBAL SECTION MAPPING AND PFN MAPPING ARE USED.
0000 115          ;*****
0000 116          ;
0000 117          .MACRO  DELTVA  STARTVA,ENDVA,STATUS=S^#SS$ NORMAL,-
0000 118                      INADR=W^INRANGE,RETADR=W^RETRANGE,?L1
0000 119          LIST
0000 120                      CMPW   W^WHICHRUN,#RUN1          ;IF USING MAPPED SECTIONS FOR TESTS,
0000 121                      BLEQ   L1                          ;DELETE SECTION AND THEN DO A DELTVA
0000 122                      $DGBLSC_ S                        -
0000 123                      -GSDNAM=<W^GBLSECNAM>
0000 124          L1:
0000 125                      .IF   NB,STARTVA
0000 126                      MOVL   STARTVA,W^INRANGE
0000 127                      .ENDC
0000 128                      .IF   NB,ENDVA
0000 129                      MOVL   ENDVA,W^INRANGE+4
0000 130                      .ENDC
0000 131                      MOVZWL  STATUS,R3
0000 132                      MOVAL   INADR,R0
0000 133                      MOVAL   RETADR,R1
0000 134                      BSBW   DELTVA$UBR
0000 135
0000 136          NLIST
0000 137          .ENDM  DELTVA
0000 138
0000 139          .MACRO  EXPREG  PAGCNT,REGION=#0,STATUS=S^#SS$ NORMAL,-
0000 140                      RETADR=W^RETRANGE
0000 141          LIST
0000 142                      MOVZWL  STATUS,R3
0000 143                      MOVL   PAGCNT,R4
0000 144                      MOVAL   RETADR,R1
0000 145                      .IF   IDN,<REGION>,<#0>
0000 146                      CLRL   R5
0000 147                      .IFF
0000 148                      MOVL   REGION,R5
0000 149                      .ENDC
0000 150                      BSBW   EXPREG$UBR
0000 151
0000 152          NLIST
0000 153          .ENDM  EXPREG
0000 154
0000 155          .MACRO  SETPRT  ACC,STARTVA,ENDVA,STATUS=S^#SS$ NORMAL,-
0000 156                      INADR=W^INRANGE,RETADR=W^RETRANGE,-
0000 157                      PRVPRT=NONE,PRVPRTADR
0000 158          LIST
0000 159                      .IF   NB,STARTVA
0000 160                      MOVL   STARTVA,W^INRANGE
0000 161                      .ENDC
0000 161                      .IF   NB,ENDVA
```



```
0000 162      MOVL      ENDVA,W^INRANGE+4
0000 163      .ENDC
0000 164      MOVZWL   STATUS,R3
0000 165      MOVAL     INADR,R0
0000 166      MOVAL     RETADR,R1
0000 167      MOVZBL    S^#PRT$C,'ACC,R4
0000 168      MOVZBL    S^#PRT$C-'PRVPRT,R5
0000 169      .IF      B,PRVPRTADR
0000 170      .IF      DIF,<PRVPRT>,<NONE>
0000 171      MOVAL     W^PREVPROT,R6
0000 172      .IFF
0000 173      CLRL      R6
0000 174      .ENDC
0000 175      .IFF
0000 176      MOVAL     PRVPRTADR,R6
0000 177      .ENDC
0000 178      BSBW      SETPRTSUBR
```

```
0000 179      NLIST
0000 180      .ENDM   SETPRT
```

```
0000 181
0000 182 :*****
0000 183 : THIS MACRO USED TO CREATE PERMANENT GLOBAL SECTIONS.  THE FILE NAME
0000 184 : AND GBL SECTION DEVICE NAME ARE DECLARED INDEPENDANTLY OF THIS MACRO
0000 185 : AND ARE PUSHED ONTO THE STACK MANUALLY BEFORE THE $CRMPSC SERVICE IS
0000 186 : CALLED.
0000 187 :
0000 188 : ALSO NOTE THE TEMPORARY FIX LOCATED AT THE BOTTOM OF THE MACRO.  THE
0000 189 : FIX IS NEEDED BECAUSE THE LAST GLOBAL SECTION MAY NOT HAVE BEEN DELETED
0000 190 : BY THE TIME THE NEXT MAPPED SECTION IS CREATED.  IN THIS CASE THE
0000 191 : RETURNED ERROR IS TRAPPED AND THE SECTION IS REMAPPED UNTIL THE
0000 192 : SUCCESS CODE IS RETURNED.  THIS BUG IS SLATED TO BE FIXED.  WHEN THAT
0000 193 : IS ACCOMPLISHED REFER TO THE COMMENTS ABOVE THE FIX TO DETERMINE WHAT
0000 194 : LINES SHOULD BE REMOVED TO DELETE THE PATCH.
0000 195 :*****
```

```
0000 196 :
0000 197 : .MACRO  CREMAPSEC -
0000 198 :   STARTVA      :-
0000 199 :   ENDVA        :-
0000 200 :   STATUS       :-
0000 201 :   INADR=<W^INRANGE>,-      : INPUT RANGE
0000 202 :   RETADR=<W^RETRANGE>,-    : RETURN RANGE
0000 203 :   FLAGS=#0      :-        : SECTION FLAGS
0000 204 :   GSDNAM=<W^GBLSECNAM>,-   : GLOBAL SECTION NAME
0000 205 :   RELPAG=#0     :-        : RELATIVE PAGE
0000 206 :   FILNAM=<W^FILENAME>,-    : FILE NAME
0000 207 :   PAGCNT=#0     :-        : MAX SIZE OF SECTION
0000 208 :   VBN=#0        :-        : STARTING WIRT BLK NO. IN FILE
0000 209 :   ?L1          :-
```

```
0000 210      LIST
0000 211      .IF      NB,STARTVA
0000 212      MOVL     STARTVA,W^INRANGE
0000 213      .ENDC
0000 214      .IF      NB,ENDVA
0000 215      MOVL     ENDVA,W^INRANGE+4
0000 216      .ENDC
0000 217      MOVZWL   STATUS,R3
0000 218 L1:
```

```
0000 219          PUSHL   VBN
0000 220          PUSHL   PAGCNT
0000 221          $PUSHADR FILNAM
0000 222          PUSHL   RELPAG
0000 223          $PUSHADR GSDNAM
0000 224          PUSHL   FLAGS
0000 225          $PUSHADR RETADR
0000 226          $PUSHADR INADR
0000 227          CALLS   #8,LIB$_CREMAPSEC
0000 228          ;*****
0000 229          ;IN ORDER TO DELTE THE PATCH MENTIONED ABOVE SIMPLY REMOVE THE LINES FROM
0000 230          ;HERE TO THE NEXT SET OF ASTERISCS.
0000 231          ;
0000 232          CMPL     #^X1828A,R0          ;IF PREVIOUS GBL SECTION HASN'T
0000 233          BEQL     L1                    ;BEEN DELETED TRY CREMAPSEC AGAIN.
0000 234          ;*****
0000 235          MOVAL    W^CRMPSCERR,R1
0000 236          BSBW    CHECK1
0000 237          NLIST
0000 238          .ENDM   CREMAPSEC
0000 239
0000 240          ;*****
0000 241          ; THIS MACRO IS USED TO DETERMINE WHETHER THE MAKEVA SHOULD BE
0000 242          ; TRANSLATED INTO A $CRETVA, A $CRMPSC USING GLOBLAL SECTIONS,
0000 243          ; OR A $CRMPSC USING PFN MAPPING. THE DECISION IS BASED UPON WHICH
0000 244          ; RUN THE PROGRAM IS CURRENTLY IN.
0000 245          ;
0000 246          ; ALSO NOTE THAT THE FIX THAT WAS APPLIED TO $CRMPSC MACRO LOCATED
0000 247          ; ABOVE, WAS ALSO APPLIED TO THE $CRMPSC CALL LOCATED IN THE THIRD
0000 248          ; PART OF THIS MACRO. UPON THE FIX OF THIS BUG REFER TO THE
0000 249          ; FIXED AREA TO FIND OUT WHAT MUST BE DELETED IN ORDER TO GET RID
0000 250          ; OF THE TEMPORARY PATCH.
0000 251          ;*****
0000 252          ;
0000 253          .MACRO MAKEVA STARTVA,ENDVA,STAT=S^#SS$_NORMAL,?L1,?L2,?L10,?L20,-
0000 254          ?L30,?L40
0000 255          LIST
0000 256          CASEL W^WHICHRUN,#1,#RUNMAX
0000 257          L1:
0000 258          .WORD L10-L1          ;IF FIRST RUN USE CRETVA.
0000 259          .WORD L20-L1          ;IF SECOND USE GBL CREMAPSEC
0000 260          .WORD L30-L1          ;IF THIRD USE PFN MAPPING
0000 261          L10:
0000 262          CRETVA STARTVA,ENDVA,STATUS=STAT
0000 263          LIST
0000 264          BRW L40
0000 265          L20:
0000 266          CREMAPSEC STARTVA,ENDVA,STATUS=STAT,-
0000 267          FLAGS=#<SEC$M_GBL!SEC$M_PERM!SEC$M_DZRO!SEC$M_WRT>,-
0000 268          PAGCNT=#25
0000 269          LIST
0000 270          BRW L40
0000 271          L30:
0000 272          .IF     NB,STARTVA
0000 273          MOVL    STARTVA,W^INRANGE
0000 274          .ENDC
0000 275          .IF     NB,ENDVA
```



```
0000 276          MOVL    ENDVA,W^INRANGE+4
0000 277          .ENDC
0000 278          MOVZWL  STAT,R3
0000 279 L2:
0000 280          $CRMPSC_S
0000 281          -INADR=<W^INRANGE>,-
0000 282          RETADR=<W^RETRANGE>,-
0000 283          GSDNAM=<W^GBLSECNAM>,-
0000 284          VBN=#0,-
0000 285          FLAGS=#<SEC$M_GBL!SEC$M_PERM!SEC$M_PFNMAP!SEC$M_WRT>,-
0000 286          PAGCNT=#25
0000 287          :*****
0000 288          :IN ORDER TO REMOVE THE TEMPORARY FIX EXPLAINED ABOVE REMOVE THE LINES
0000 289          :STARTING FROM HERE AND EXTENDING THE THE NEXT SET OF ASTERICS.
0000 290          :
0000 291          CMPL     #^X1828A,R0          ;IF PREVIOUS GBL SECTION HASN'T
0000 292          BEQL     L2                    ;BEEN DELETED TRY CREMAPSEC AGAIN.
0000 293          :*****
0000 294          MOVAL    W^CRMPSCERR,R1
0000 295          BSBW     CHECK1
0000 296 L40:
0000 297          NLIST
0000 298          .ENDM    MAKEVA
0000 299
0000 300          .MACRO   RANGECHK ONOROFF
0000 301          LIST
0000 302          .IF      IDN <ONOROFF>,<OFF>
0000 303          BICL     #CTL$M_RNGCHK,W^CTLFLG
0000 304          .IFF
0000 305          BISL     #CTL$M_RNGCHK,W^CTLFLG
0000 306          .ENDC
0000 307          NLIST
0000 308          .ENDM    RANGECHK
0000 309
0000 310          :
0000 311          : EQUATED SYMBOLS:
0000 312          :
0000 313          $$$DEF                                ;DEFINE SYSTEM SERVICE CODES
0000 314          $SECDEF                            ;DEFINE SECTION CODES
0000 315          $PRTDEF
0000 316          $GBLINI
0000 317          $VIELD    CTL,0,<-
0000 318          <MEMLOOP,,MASK>,-
0000 319          <TSTLOOP,,MASK>,-
0000 320          <PIDMSG,,MASK>,-
0000 321          <RNGCHK,,MASK>-
0000 322          >
0000 323          RUN1=1
0000 324          RUN2=2
0000 325          RUNMAX=3
0000 326          PRT$C_NONE=124
0000 327          :
0000 328          : OWN STORAGE:
0000 329          :
```

00000001 0000 323 RUN1=1  
00000002 0000 324 RUN2=2  
00000003 0000 325 RUNMAX=3  
00000010 0000 326 PRT\$C\_NONE=124

```
0000 331 .SBTTL DATA STORAGE AND MESSAGE STRINGS
00000000 332 .PSECT DATA0,PAGE,WRT,NOEXE
0000 333 INRANGE: .BLKL 2
00000008 334 RETRANGE: .BLKL 2
00000010 335 CTLFLG: .LONG CTL$M_TSTLOOP!CTL$M_PIDMSG
00000006 336 SAVEND: .BLKL 1
00000018 337 PID: .BLKL 1 ;PROCESS ID
0000001C 338 MAXPASSCNT: .LONG 3 ;NUMBER OF PASSES TO RUN
00000003 339 PASSCNT: .BLKL 1 ;PASS COUNTER
00000024 340 MAXWHICHRUN: .LONG 3 ;NUMBER OF RUNS
00000003 341 WHICHRUN: .BLKL 1 ;WHICH RUN COUNTER
0000002C 342 PREVPROT:
0000002C 343 FAB: $FAB FAC=PUT, FNA=OUTNAMADR, FNS=OUTNAMSIZ ;FAB FOR OUTPUT
000000C4 344 RAB: $RAB FAB=FAB ;RECORD ACCESS BLOCK FOR OUTPUT
000000E2'000000A0' 345 MSGLEN: .BLKL 1 ;RETURN LENGTH FROM FAO
000000DE'00000004' 346 MSGBUFD: .LONG MSGBUFSIZ,MSGBUF ;MESSAGE BUFFER DESCRIPTOR
000000DE'00000004' 347 PIDMSGD: .LONG MSGBUF-PIDMSG,PIDMSG
0004 348 :
0004 349 : ***** DO NOT SEPARATE OR REORDER THE FOLLOWING LINES
0004 350 :
0004 351 MSGBUFD:
0004 352 CRLF: .BYTE ^015,^012
20 53 53 45 43 4F 52 50 0004 353 .ASCII $PROCESS $
20 20 20 20 0006 354 PIDMSG: .ASCII $ $
00000182 00E2 355 MSGBUF: .BLKB 160 ;MESSAGE BUFFER USED BY FAO
000000A0 0182 356 MSGBUFSIZ=-MSGBUF
0182 357 :
0182 358 : ***** DO NOT SEPARATE OR REORDER THE PRECEEDING LINES
0182 359 :
00000000 360 .PSECT DATA1,PAGE,WRT,NOEXE
0000 361 :
00000800 0000 362 WRTPAGES:
00000800 363 .BLKL 128*4
00000000 364 :
00000800 0000 365 .PSECT DATA2,PAGE,NOWRT,NOEXE
00000800 366 RDPAGES:
00000800 367 .BLKL 128*4
0800 368 :
0800 369 :
```

```
00000000 378 .PSECT CODE,PAGE,NOWRT,EXE
0000 379
0000 380 CODEPAGES:
0000 381
0000 382 OUTNAMADR:
54 55 50 54 55 4F 24 53 59 53 0000 383 .ASCII /SYSS$OUTPUT/
0000000A 000A 384 OUTNAM$IZ=.-OUTNAMADR
000A 385
000A 386 $CRETVAERRADR:
52 52 45 20 41 56 54 45 52 43 2F 21 000A 387 .ASCII $!/CRETVA ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 0016
41 57 20 53 55 54 41 54 53 20 2C 4C 0022
4C 55 4F 48 53 20 2C 4C 58 21 20 53 002E
003A
21 20 3D 20 52 44 41 4E 49 09 2F 21 0042 388 .ASCII $!/ INADR = !XL - !XL, RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58 004E
20 4C 58 21 20 3D 20 52 44 41 54 45 005A
2F 21 4C 58 21 20 2D 0066
00000063 006D 389 $CRETVAERR$IZ=.-CRETVAERRADR
006D 390
006D 391 $DELTVAERRADR:
52 52 45 20 41 56 54 4C 45 44 2F 21 006D 392 .ASCII $!/DELTVA ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 0079
41 57 20 53 55 54 41 54 53 20 2C 4C 0085
4C 55 4F 48 53 20 2C 4C 58 21 20 53 0091
009D
21 20 3D 20 52 44 41 4E 49 09 2F 21 00A5 393 .ASCII $!/ INADR = !XL - !XL, RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58 00B1
20 4C 58 21 20 3D 20 52 44 41 54 45 00BD
2F 21 4C 58 21 20 2D 00C9
00000063 00D0 394 $DELTVAERR$IZ=.-DELTVAERRADR
00D0 395
00D0 396 $CRMP$CERRADR:
52 52 45 20 43 53 50 4D 52 43 2F 21 00D0 397 .ASCII $!/CRMP$C ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 00DC
41 57 20 53 55 54 41 54 53 20 2C 4C 00E8
4C 55 4F 48 53 20 2C 4C 58 21 20 53 00F4
0100
21 20 3D 20 52 44 41 4E 49 09 2F 21 0108 398 .ASCII $!/ INADR = !XL - !XL, RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58 0114
20 4C 58 21 20 3D 20 52 44 41 54 45 0120
2F 21 4C 58 21 20 2D 012C
00000063 0133 399 $CRMP$CERR$IZ=.-CRMP$CERRADR
0133 400
0133 401 $EXPREGERRADR:
52 52 45 20 47 45 52 50 58 45 2F 21 0133 402 .ASCII $!/EXPREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F 013F
41 57 20 53 55 54 41 54 53 20 2C 4C 0148
4C 55 4F 48 53 20 2C 4C 58 21 20 53 0157
0163
20 3D 20 54 4E 43 47 41 50 09 2F 21 0168 403 .ASCII $!/ PAGCNT = !SL, REGION = P!UB SPACE, $
20 4E 4F 49 47 45 52 20 2C 4C 53 21 0177
45 45 41 50 53 20 42 55 21 50 20 3D 0183
20 2C 018F
4C 58 21 20 3D 20 52 44 41 54 45 52 0191 404 .ASCII $RETADR = !XL - !XL!/$
2F 21 4C 58 21 20 2D 20 019D
00000072 01A5 405 $EXPREGERR$IZ=.-EXPREGERRADR
```



```
52 52 45 20 54 52 50 54 45 53 2F 21 01A5 406
58 21 20 3D 20 43 50 20 2D 20 52 4F 01A5 407
41 57 20 53 55 54 41 54 53 20 2C 4C 01A5 408
4C 55 4F 48 53 20 2C 4C 58 21 20 53 01B1
21 20 3D 20 52 44 41 4E 49 09 2F 21 01BD
52 20 20 2C 4C 58 21 20 2D 20 4C 58 01C9
20 4C 58 21 20 3D 20 52 44 41 54 45 01D5
20 53 55 4F 49 56 45 52 50 09 2F 21 01DD
57 20 4E 4F 49 54 43 45 54 4F 52 50 01E9
4F 48 53 20 2C 42 58 31 21 20 53 41 01F5
21 42 58 31 21 20 45 42 20 44 4C 55 0201
00000092 0206 410
4F 52 52 45 20 44 41 45 52 20 2F 21 0212
4E 4F 49 54 41 43 4F 4C 20 2D 20 52 021E
2F 21 20 4C 58 21 20 3D 20 4E 4F 49 022A
00000021 0236
45 20 44 41 45 52 2D 4F 4E 20 2F 21 0237 411
54 41 43 4F 4C 20 2D 20 52 4F 52 52 0237 412
2F 21 20 4C 58 21 20 3D 20 4E 4F 49 0237 413
00000024 0243 414
52 52 45 20 45 54 49 52 57 20 2F 21 024F 415
4F 49 54 41 43 4F 4C 20 2D 20 52 4F 52 52 0258
2F 21 20 4C 58 21 20 3D 20 4E 4F 49 0258 416
00000022 0258 417
20 45 54 49 52 57 2D 4F 4E 20 2F 21 0258 418
41 43 4F 4C 20 2D 20 52 4F 52 52 0264
21 20 4C 58 21 20 3D 20 4E 4F 49 0270
00000025 027C 419
4E 41 52 20 4E 52 55 54 45 52 2F 21 027C 420
4C 20 2D 20 52 4F 52 52 45 20 45 47 027C 421
58 21 20 3D 20 4E 4F 49 54 41 43 4F 027C 422
21 20 3D 20 52 44 41 4E 49 09 2F 21 0288
45 52 20 2C 4C 58 21 20 2D 20 4C 58 0294
20 20 4C 58 21 20 3D 20 52 44 41 54 029E
2F 21 4C 58 21 20 0000004F 029E 423
00000025 029E 424
4E 41 52 20 4E 52 55 54 45 52 2F 21 029E 425
4C 20 2D 20 52 4F 52 52 45 20 45 47 02AA 426
58 21 20 3D 20 4E 4F 49 54 41 43 4F 02B6
21 20 3D 20 52 44 41 4E 49 09 2F 21 02C2
45 52 20 2C 4C 58 21 20 2D 20 4C 58 02C3 427
20 20 4C 58 21 20 3D 20 52 44 41 54 02C3 428
2F 21 4C 58 21 20 0000004F 02C3 429
00000025 02C3 430
4E 41 52 20 4E 52 55 54 45 52 2F 21 02CF 431
4C 20 2D 20 52 4F 52 52 45 20 45 47 02DB
58 21 20 3D 20 4E 4F 49 54 41 43 4F 02E7
21 20 3D 20 52 44 41 4E 49 09 2F 21 02E8
45 52 20 2C 4C 58 21 20 2D 20 4C 58 02F4
20 20 4C 58 21 20 3D 20 52 44 41 54 0300
2F 21 4C 58 21 20 0000004F 030C
00000025 0312 432
00000025 0312 433
4E 41 52 20 4E 52 55 54 45 52 2F 21 0312 434
56 52 45 53 20 54 4E 45 4D 45 47 41 031E 435
```

406  
407 SETPRERRADR:  
408 .ASCII \$!/SETPRT ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL\$

409 .ASCII \$!/ INADR = !XL - !XL, RETADR = !XL - !XL\$

410 .ASCII \$!/ PREVIOUS PROTECTION WAS !1XB, SHOULD BE !1XB!/\$

411 SETPRERRSIZ=-SETPRERRADR

412

413 READERRADR:  
414 .ASCII \$!/ READ ERROR - LOCATION = !XL !/\$

415 READERRSIZ=-READERRADR

416

417 NOREADERRADR:  
418 .ASCII \$!/ NO-READ ERROR - LOCATION = !XL !/\$

419 NOREADERRSIZ=-NOREADERRADR

420

421 WRITERRADR:  
422 .ASCII \$!/ WRITE ERROR - LOCATION = !XL !/\$

423

424 WRITERRSIZ=-WRITERRADR

425 NOWRITERRADR:  
426 .ASCII \$!/ NO-WRITE ERROR - LOCATION = !XL !/\$

427 NOWRITERRSIZ=-NOWRITERRADR

428

429 RANGERRADR:  
430 .ASCII \$!/RETURN RANGE ERROR - LOCATION = !XL\$

431 .ASCII \$!/ INADR = !XL - !XL, RETADR = !XL - !XL!/\$

432 RANGERRSIZ=-RANGERRADR

433

434 IDMSGADR:  
435 .ASCII \$!/MEMORY MANAGEMENT SERVICES TEST #1 (CRDLSP), PASS !UL!/\$

```
31 23 20 54 53 45 54 20 53 45 43 49 032A
50 20 2C 29 50 53 4C 44 52 43 28 20 0336
    2F 21 4C 55 21 20 53 53 41 0342
    00000039 0348 436 IDMSG$IZ=.-IDMSGADR
    0348 437
    0348 438 RUN1_MSGADR:
    0348 439 .ASCII $!/ ***** TEST WILL NOW BE RUN USING REGULAR VA SPACE *****$
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21 0348
4E 20 4C 4C 49 57 20 54 53 45 54 20 0357
53 55 20 4E 55 52 20 45 42 20 57 4F 0363
20 52 41 4C 55 47 45 52 20 47 4E 49 036F
2A 20 20 20 45 43 41 50 53 20 41 56 037B
    2A 2A 2A 2A 0387
    20 2F 21 038B 440 .ASCII $!/ $
    00000043 038E 441 RUN1_MSG$IZ=.-RUN1_MSGADR
    038E 442
    038E 443 RUN2_MSGADR:
    038E 444 .ASCII $!/ ***** TEST WILL NOW BE RUN USING PERM GBL SECTIONS *****$
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21 038E
4E 20 4C 4C 49 57 20 54 53 45 54 20 039A
53 55 20 4E 55 52 20 45 42 20 57 4F 03A6
4C 42 47 20 4D 52 45 50 20 47 4E 49 03B2
20 20 20 53 4E 4F 49 54 43 45 53 20 03BE
    2A 2A 2A 2A 2A 03CA
    20 2F 21 03CF 445 .ASCII $!/ $
    00000044 03D2 446 RUN2_MSG$IZ=.-RUN2_MSGADR
    03D2 447
    03D2 448 RUN3_MSGADR:
    03D2 449 .ASCII $!/ ***** TEST WILL NOW BE RUN USING PFN MAPPING *****$
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21 03D2
4E 20 4C 4C 49 57 20 54 53 45 54 20 03DE
53 55 20 4E 55 52 20 45 42 20 57 4F 03EA
50 50 41 4D 20 4E 46 50 20 47 4E 49 03F6
    2A 2A 2A 2A 2A 20 20 20 47 4E 49 0402
    20 2F 21 040D 450 .ASCII $!/ $
    0000003E 0410 451 RUN3_MSG$IZ=.-RUN3_MSGADR
    0410 452
    0410 453 PIDCTLADR:
    0410 454 .ASCII $!UL$
    00000003 0413 455 PIDCTLSIZ=.-PIDCTLADR
    0413 456
    0413 457 GBLSECNAMADR:
    0413 458 .ASCII $MMGTST$
    54 53 54 47 4D 4D 0419 459 GBLSECNAM$IZ=.-GBLSECNAMADR
    00000006 0419 460
    0419 461 FILENAMEADR:
    54 41 44 2E 54 53 54 47 4D 4D 0419 462 .ASCII $MMGTST.DAT$
    0000000A 0423 463 FILENAME$IZ=.-FILENAMEADR
    0423 464
```

	0423	466	:	
	0423	467	:	STRING DESCRIPTORS
	0423	468	:	
	0423	469	:	.ALIGN LONG
	0424	470	:	
	0424	471	:	CRETVAERR:
0000000A'00000063	0424	472	:	.LONG CRETVAERRSIZ,CRETVAERRADR
	042C	473	:	DELTVAERR:
0000006D'00000063	042C	474	:	.LONG DELTVAERRSIZ,DELTVAERRADR
	0434	475	:	EXPREGERR:
00000133'00000072	0434	476	:	.LONG EXPREGERRSIZ,EXPREGERRADR
	043C	477	:	CRMPSCERR:
000000D0'00000063	043C	478	:	.LONG CRMPSCERRSIZ,CRMPSCERRADR
	0444	479	:	SETPRTERR:
000001A5'00000092	0444	480	:	.LONG SETPRTERRSIZ,SETPRTERRADR
	044C	481	:	READERR:
00000237'00000021	044C	482	:	.LONG READERRSIZ,READERRADR
	0454	483	:	NOREADERR:
00000258'00000024	0454	484	:	.LONG NOREADERRSIZ,NOREADERRADR
	045C	485	:	WRITERR:
0000027C'00000022	045C	486	:	.LONG WRITERRSIZ,WRITERRADR
	0464	487	:	NOWRITERR:
0000029E'00000025	0464	488	:	.LONG NOWRITERRSIZ,NOWRITERRADR
	046C	489	:	RANGERR:
000002C3'0000004F	046C	490	:	.LONG RANGERRSIZ,RANGERRADR
	0474	491	:	IDMSG:
00000312'00000039	0474	492	:	.LONG IDMSGISIZ,IDMSGADR
	047C	493	:	RUN1_MSG:
0000034B'00000043	047C	494	:	.LONG RUN1_MSGSIZ,RUN1_MSGADR
	0484	495	:	RUN2_MSG:
0000038E'00000044	0484	496	:	.LONG RUN2_MSGSIZ,RUN2_MSGADR
	048C	497	:	RUN3_MSG:
000003D2'0000003E	048C	498	:	.LONG RUN3_MSGSIZ,RUN3_MSGADR
	0494	499	:	PIDCTL:
00000410'00000003	0494	500	:	.LONG PIDCTLSIZ,PIDCTLADR
	049C	501	:	GBLSECNAM:
00000413'00000006	049C	502	:	.LONG GBLSECNAMSIZ,GBLSECNAMADR
	04A4	503	:	FILENAME:
00000419'0000000A	04A4	504	:	.LONG FILENAMESIZ,FILENAMEADR
	04AC	505	:	



```
04AC 507 .SBTTL  INITIALIZATION
04AC 508 *****
04AC 509 :PROGRAM DESCRIPTION:
04AC 510 :
04AC 511 : THIS PROGRAM TESTS THE FOLLOWING SYSTEM SERVICES:
04AC 512 :   $CRETVA,$DELTVA,$SETPRT
04AC 513 :
04AC 514 : THE SYSTEM SERVICES ARE TESTED IN THE FOLLOWING MANNER. THE PROGRAM
04AC 515 : IS DESIGNED TO MAKE THREE RUNS. EACH RUN MAKES THREE PASSES. ON
04AC 516 : THE FIRST RUN WHEN A MAKEVA IS ENCOUNTERED IT IS REPLACED WITH A
04AC 517 : CRETVA. IT THEN MAKES THREE PASSES THROUGH THE PROGRAM DOING
04AC 518 : ALL THE POSSIBLE TESTS. ON THE SECOND RUN THE MAKEVA IS ENCOUNTERED
04AC 519 : AND IS REPLACED WITH A $CRMPSC THAT MAPS A PERMANENT GLOBAL SECTION.
04AC 520 : FOR THE THIRD RUN, THE MAKVA IS REPLACED WITH A $CRMPSC THAT MAPS
04AC 521 : A PFN GLOBAL SECTION. USING THIS APPROACH THE $CRMPSC SYSTEM SERVICE
04AC 522 : WAS ALSO ABLE TO BE TESTED AS ALL ERROR PATHS FOLLOWED WHEN USING
04AC 523 : NORMAL VA ARE ALSO APPLICABLE WHEN USING GBL SECTION MAPPING.
04AC 524 :
04AC 525 : FOR EACH OF THESE RUNS A MESSAGE IS SENT TO THE TERMINAL
04AC 526 : INFORMING THE OPERATOR AS TO WHICH OF THESE SUBSTITUTE MAKEVA'S WILL
04AC 527 : BE USED FOR THAT SET OF PASSES.
04AC 528 :
04AC 529 : REFER TO MASD$:[MMGTST.COM]MMGTST.RAP FOR FURTHER INFORMATION
04AC 530 : REGARDING JUST HOW COMPLETELY THE ABOVE MENTIONED SYSTEM SERVICES
04AC 531 : ARE TESTED BY THIS PROGRAM.
04AC 532 :
04AC 533 : *NOTE:
04AC 534 : THERE IS A BUG IN $CRMPSC THAT WILL BE FIXED IN THE FUTURE. UNTIL
04AC 535 : THIS FIX TAKES PLACE THERE AREA TEMPORARY PATCH'S LOCATED AT THE END
04AC 536 : OF THE CREMAPSEC MACRO AND MAKVA MACRO WHICH CIRCUMVENT THIS
04AC 537 : PROBLEM. UPON CORRECTION OF THIS BUG REFER TO THESE ABOVE MENTIONED
04AC 538 : MACROS TO FIND OUT HOW TO REMOVE THESE TEMPORARY PATCHES.
04AC 539 :
04AC 540 : ALSO, THE FILE MMGTST.DAT, WHICH IS CREATED BY RUNNING MMGCRTFIL.MAR,
04AC 541 : IS NECESSARY TO RUN THIS PROGRAM AS IT IS REFERENCED BY CREMAPSEC.
04AC 542 :
04AC 543 : *PRIVILEGES:
04AC 544 : IN ORDER TO RUN THIS PROGRAM YOU MUST HAVE IN YOUR POSSESSION
04AC 545 : THE PRIVILEGES PRMGBL AND PFNMAP.
04AC 546 : *****
04AC 547 :
04AC 548 : START HERE
04AC 549 :
0000 04AC 550 START:  .WORD  0                      ;ENTRY MASK
OE 50  E9 04AE 551 $OPEN  W*FAB                      ;OPEN THE FILE '$OUTPUT'
04BC 552 BLBC   RO,10$                      ;BRANCH IF ERROR
09 50  E8 04BC 553 $CONNECT W*FAB                      ;CONNECT THE RECORD ACCESS BLOCK
04CA 554 BLBS   RO,20$
04D3 555 10$: $EXIT S RO                      ;EXIT WITH STATUS IN RO
04E2 556 20$: $RESUME S PID                    ;SET UP PROCESS ID
50 00000018'EF 3C 04E2 557 MOVZWL -PID,RO
04E9 558 $FAO_S PIDCTL,MSGLEN,PIDMSGD,RO      ;INIT THE PROCESS ID STRING
0501 559 CLRL  WHICHRUN                      ;INIT THE RUN COUNT TO ZERO
0507 560
0507 561
0507 562 MAIN PROGRAM:
0507 563 :*****
```

```
0507 564 : THIS COUNTER IS USED TO DETERMINE WHICH CRMPSC IS TO BE
0507 565 : REFERENCED, OR IF THE CRETVA IS TO BE USED, WHEN A MAKEVA
0507 566 : IS ENCOUNTERED.
0507 567 :*****
0507 568
0C 0028'CF 01 D0 0507 569      MOVL    #1,W^PASSCNT      ;INITIALIZE THE PASS COUNT
0024'CF F3 050C 570      AOBLEQ  W^MAXWHICHRUN,W^WHICHRUN,PRESTART
0514 571
0514 572 END:
SG 01 9A 0514 573      MOVZBL  #SS$_NORMAL,R0
0517 574      $EXIT,S R0
0520 575
03 01 0028'CF CF 0520 576 PRESTART:
0520 577      CASEL    W^WHICHRUN,#1,#RUNMAX
0526 578 L50:
0006' 0526 579      .WORD    CRETVA_MESSAGE-L50      ;FOR EACH RUN PRINT MESSAGE
0022' 0528 580      .WORD    GBL_SEC_MESSAGE-L50      ;DESCRIBING WHICH VA SPACE
0044' 052A 581      .WORD    PFNMAP_MESSAGE-L50      ;IS BEING USED.
052C 582
052C 583 CRETVA_MESSAGE:
052C 584      $FAO,S  RUN1 MSG,MSGLEN,MSGBUFD
ODCA 30 0543 585      BSBW-  TYPEMSGBUF
44 11 0546 586      BRB      INIT_START
0548 587
0548 588 GBL_SEC_MESSAGE:
0010'CF 04 C8 0548 589      BISL    #CTL$M_PIDMSG,W^CTLFLG      ;ALLOW PROCESS ID TO PRINT
054D 590      $FAO,S  RUN2 MSG,MSGLEN,MSGBUFD
ODA9 30 0564 591      BSBW-  TYPEMSGBUF
00E6 31 0567 592      BRW      RSTART
056A 593
056A 594 PFNMAP_MESSAGE:
0010'CF 04 C8 056A 595      BISL    #CTL$M_PIDMSG,W^CTLFLG      ;ALLOW PROCESS ID TO PRINT
056F 596      $FAO,S  RUN3 MSG,MSGLEN,MSGBUFD
OD87 30 0586 597      BSBW-  TYPEMSGBUF
00C4 31 0589 598      BRW      RSTART
058C 599
058C 600 INIT_START:
0010'CF 04 CA 058C 601      BICL    #CTL$M_PIDMSG,W^CTLFLG      ;STOP PROCESS ID FROM PRINTING
0591 602      EXPREG  #1
53 01 3C 0591 603      MOVZWL  S^#SS$_NORMAL,R3
54 01 D0 0594 604      MOVL    #1,R4
51 0008'CF DE 0597 605      MOVAL   W^RETRANGE,R1
55 D4 059C 606      CLRL    R5
OC1C 30 059E 607      BSBW    EXPREGSUBR
52 0008'CF 7D 05A1 608      MOVQ    W^RETRANGE,R2
0000'CF 52 7D 05A6 609      MOVQ    R2,W^INRANGE      ;FIND END OF REGION'S VA SPACE
0014'CF 52 D0 05AB 610      MOVL    R2,W^SAVEND      ;AND SAVE FOR FUTURE TESTS.
05B0 611
05B0 612 READ    #1,RDPAGES      ;CHECK READABILITY AND WRITABILITY
05C4 613 READ    #1,CODEPAGES  ;OF PAGES CREATED AT LINK TIME.
05D6 614 WRITE   #1,WRTPAGES
05EA 615 WRITE   #1,(R2)
05FA 616 NOREAD  #2,<^X1FF(R2)>      ;1ST READABLE, 2ND NOT
060A 617 READ    #1,<^X1FF(R2)>      ;TEST 1 BYTE AT EDGE
061C 618
01 0028'CF B1 061C 619      CMPW    W^WHICHRUN,#RUN1      ;IF USING MAPPED SECTIONS FOR TESTS,
OF 15 0621 620      BLEQ    30011$      ;DELETE SECTION AND THEN DO A DELTVA
```

```
00 DD 0623
FE73 CF 7F 0625
00 DD 0629
00000000'GF 03 FB 062B
0632
30011$:
50 53 01 3C 0632
0000'CF DE 0635
51 0008'CF DE 063A
0B08 30 063F
0642 614
0650 615
0650 616 RSTART:
0650 617
0010'CF 08 C8 0650
0010'CF 04 CA 0655 618
065A 619
0C96 30 0677 620
067A 621
53 01 3C 067A
54 01 D0 067D
51 0008'CF DE 0680
55 D4 0685
0B33 30 0687
52 0008'CF 7D 068A 622
0000'CF 52 7D 068F 623
0014'CF 52 D0 0694 624
0699 625
01 0028'CF B1 0699
0F 15 069E
00 DD 06A0
FDF6 CF 7F 06A2
00 DD 06A6
00000000'GF 03 FB 06A8
06AF 30013$:
50 53 01 3C 06AF
0000'CF DE 06B2
51 0008'CF DE 06B7
0A8B 30 06BC
06BF 626
03 01 0028'CF CF 06BF MAKEVA
06C5 30014$:
0006' 06C5
0019' 06C7
0053' 06C9
06CB 30016$:
50 53 01 3C 06CB
0000'CF DE 06CE
51 0008'CF DE 06D3
0A5B 30 06D8
0076 31 06DB
06DE 30017$:
53 01 3C 06DE
06E1 30020$:
00 DD 06E1
19 DD 06E3
FDBB CF DF 06E5
00 DD 06E9

PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #0
CALLS #3,G^SYS$DGBLSC

MOVZWL S^#SS$ NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW DELTVASUBR

NOREAD

RANGECHK ON
BISL #CTL$M RNGCHK,W^CTLFLG
BICL #CTL$M PIDMSG,W^CTLFLG ;STOP PROCESS ID FROM PRINTING
$FAO_S IDMSG,MSGLEN,MSGBUFD,PASSCNT
BSBW TYPEN$GBUF
EXPREG #1
MOVZWL S^#SS$ NORMAL,R3
MOVL #1,R4
MOVAL W^RETRANGE,R1
CLRL R5
BSBW EXPREGSUBR
W^RETRANGE,R2
MOVQ R2,W^INRANGE
MOVL R2,W^SAVEND
DELTVA

CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
BLEQ 30013$ ;DELETE SECTION AND THEN DO A DELTVA
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #0
CALLS #3,G^SYS$DGBLSC

MOVZWL S^#SS$ NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW DELTVASUBR

CASEL W^WHICHRUN,#1,#RUNMAX

30014$:
.WORD 30016$-30014$ ;IF FIRST RUN USE CRETVA.
.WORD 30017$-30014$ ;IF SECOND USE GBL CREMAPSEC
.WORD 30018$-30014$ ;IF THIRD USE PFN MAPPING

MOVZWL S^#SS$ NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW CRETVASUBR
BRW 30019$

MOVZWL S^#SS$ NORMAL,R3

PUSHL #0
PUSHL #25
PUSHAL W^FILENAME
PUSHL #0
```



```
FDAD CF DF 06EB
0000400D 8F DD 06EF
0008 CF DF 06F5
0000 CF DF 06F9
00000000 EF 0B FB 06FD
50 0001828A 8F D1 0704
D4 13 070B
51 FD2B CF DE 070D
0A47 30 0712
003C 31 0715
0718
53 01 3C 0718
071B
7E 7C 071B
00 DD 071D
19 DD 071F
7E 00 3C 0721
00 DD 0724
00 DD 0726
FD70 CF 7F 0728
00014009 8F DD 072C
00 DD 0732
0008 CF 7F 0734
0000 CF 7F 0738
00000000 GF 0C FB 073C
50 0001828A 8F D1 0743
CF 13 074A
51 FCEC CF DE 074C
0A0B 30 0751
0754
62 62 90 0754
0754
01 0028 CF B1 0767
0F 15 076C
00 DD 076E
FD2B CF 7F 0770
00 DD 0774
00000000 GF 03 FB 0776
077D
53 01 3C 077D
50 0000 CF DE 0780
51 0008 CF DE 0785
09BD 30 078A
078D
079B
079B
079B
079B
079B
079B
079B
079B
02 0028 CF B1 079B
03 19 07A0
045A 31 07A2
07A5
07A5

PUSHAL W^GBLSECNAM
PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
PUSHAL W^RETRANGE
PUSHAL W^INRANGE
CALLS #8,LIB$ CREMAPSEC
CMPL #X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
BEQL 30020$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
MOVAL W^CRMPSCERR,R1
BSBW CHECK1
BRW 30019$

30018$:
MOVZWL S^#SS$_NORMAL,R3
30015$:
CLRQ -(SP)
PUSHL #0
PUSHL #25
MOVZWL #0,-(SP)
PUSHL #0
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
PUSHL #0
PUSHAQ W^RETRANGE
PUSHAQ W^INRANGE
CALLS #12,G^SYS$CRMPSC
CMPL #X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
BEQL 30015$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
MOVAL W^CRMPSCERR,R1
BSBW CHECK1

30019$:
WRITE (R2),(R2)
MOV B DELTVA
CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
BLEQ 30023$ ;DELETE SECTION AND THEN DO A DELTVA
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #0
CALLS #3,G^SYS$DGBLSC

30023$:
MOVZWL S^#SS$_NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW DELTVASUBR

NOREAD

630
631
632 *****
633 : ALL THE SET PROTECTION TESTS ARE BYPASSED FOR THE SECOND AND THIRD
634 : RUNS, WHEN GLOBAL SECTIONS ARE USED, AS IT IS NOT POSSIBLE TO CHANGE
635 : THE PROTECTION OF PAGES CREATED IN THIS MANNER.
636 *****
637 :
638 CMPW W^WHICHRUN,#RUN2
639 BLSS 10$
640 BRW BYPASS_SETPRT_TESTS
641 10$:
642
```

```
03 01 0028'CF CF 07A5 643 MAKEVA CASEL W^WHICHRUN,#1,#RUNMAX
                                07A5 30025$:
                                07AB .WORD 30027$-30025$ ;IF FIRST RUN USE CRETVA.
                                0006' 07AB .WORD 30028$-30025$ ;IF SECOND USE GBL CREMAPSEC
                                0019' 07AD .WORD 30029$-30025$ ;IF THIRD USE PFN MAPPING
                                0053' 07AF
                                07B1 30027$:
                                07B1 MOVZWL S^#SS$ NORMAL,R3
                                07B4 MOVAL W^INRANGE,R0
                                07B9 MOVAL W^RETRANGE,R1
                                07BE BSBW CRETVASUBR
                                07C1 BRW 30030$
                                07C4 30028$:
                                07C4 30031$:
                                07C7 MOVZWL S^#SS$ NORMAL,R3
                                07C9 PUSHL #0
                                07CB PUSHL #25
                                07CF PUSHAL W^FILENAME
                                07D1 PUSHL #0
                                07D5 PUSHAL W^GBLSECNAM
                                07DB PUSHL #<SEC$M_GBL!SEC$M_PERM!SEC$M_DZRO!SEC$M_WRT>
                                07DF PUSHAL W^RETRANGE
                                07E3 PUSHAL W^INRANGE
                                07EA CALLS #8,LIB$ CREMAPSEC
                                07F1 CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
                                07F3 BEQL 30031$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
                                07F8 MOVAL W^CRMPSCERR,R1
                                07FB BSBW CHECK1
                                07FE BRW 30030$
                                0801 30029$:
                                0801 MOVZWL S^#SS$ NORMAL,R3
                                0803 30026$:
                                0805 CLRQ -(SP)
                                0807 PUSHL #0
                                080A PUSHL #25
                                080C MOVZWL #0,-(SP)
                                080E PUSHL #0
                                0812 PUSHL #0
                                0818 PUSHAQ W^GBLSECNAM
                                081A PUSHL #<SEC$M_GBL!SEC$M_PERM!SEC$M_PFNMAP!SEC$M_WRT>
                                081E PUSHL #0
                                0822 PUSHAQ W^RETRANGE
                                0829 PUSHAQ W^INRANGE
                                0830 CALLS #12,G^SYSS$CRMPSC
                                0832 CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
                                0837 BEQL 30026$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
                                083A MOVAL W^CRMPSCERR,R1
                                083A BSBW CHECK1
                                083A 30030$:
                                083A 644 SETPRT UR,PRVPRT=UW
                                083A MOVZWL S^#SS$ NORMAL,R3
                                083D MOVAL W^INRANGE,R0
                                0842 MOVAL W^RETRANGE,R1
                                0847 MOVZBL S^#PRT$C UR,R4
                                084A MOVZBL S^#PRT$C-UW,R5
                                084D MOVAL W^PREVPROT,R6
                                0852 BSBW SETPRTSUBR
```

			0855	645	NOWRITE	
			0863	646	READ	
			0873	647		
			0873	648	SETPRT	NA,PRVPRT=UR
50	53	01	0873		MOVZWL	S^#SS\$ NORMAL,R3
51	0000	CF	0876		MOVAL	W^INRANGE,R0
	0008	CF	0878		MOVAL	W^RETRANGE,R1
	54	00	0880		MOVZBL	S^#PRT\$C-NA,R4
	55	0F	0883		MOVZBL	S^#PRT\$C-UR,R5
56	002C	CF	0886		MOVAL	W^PREVPR0T,R6
	0998		0888		BSBW	SETPRTSUBR
		30	088E	649	NOREAD	
			089C	650		
			089C	651	SETPRT	UW,PRVPRT=KR
50	53	01	089C		MOVZWL	S^#SS\$ NORMAL,R3
51	0000	CF	089F		MOVAL	W^INRANGE,R0
	0008	CF	08A4		MOVAL	W^RETRANGE,R1
	54	04	08A9		MOVZBL	S^#PRT\$C-UW,R4
	55	03	08AC		MOVZBL	S^#PRT\$C-KR,R5
56	002C	CF	08AF		MOVAL	W^PREVPR0T,R6
	096F		08B4		BSBW	SETPRTSUBR
		30	08B7	652	WRITE	
			08C7	653		
	62	62	08C7	654	MOVW	(R2),(R2)
		90	08CA	655	SETPRT	UR,PRVPRT=UW
50	53	01	08CA		MOVZWL	S^#SS\$ NORMAL,R3
51	0000	CF	08CD		MOVAL	W^INRANGE,R0
	0008	CF	08D2		MOVAL	W^RETRANGE,R1
	54	0F	08D7		MOVZBL	S^#PRT\$C-UR,R4
	55	04	08DA		MOVZBL	S^#PRT\$C-UW,R5
56	002C	CF	08DD		MOVAL	W^PREVPR0T,R6
	0941		08E2		BSBW	SETPRTSUBR
		30	08E5	656	NOWRITE	
			08F3	657		
			08F3	658	SETPRT	NA,PRVPRT=UR
50	53	01	08F3		MOVZWL	S^#SS\$ NORMAL,R3
51	0000	CF	08F6		MOVAL	W^INRANGE,R0
	0008	CF	08FB		MOVAL	W^RETRANGE,R1
	54	00	0900		MOVZBL	S^#PRT\$C-NA,R4
	55	0F	0903		MOVZBL	S^#PRT\$C-UR,R5
56	002C	CF	0906		MOVAL	W^PREVPR0T,R6
	0918		0908		BSBW	SETPRTSUBR
		30	090E	659	NOREAD	
			091C	660		
			091C	661	SETPRT	UW,PRVPRT=KR
50	53	01	091C		MOVZWL	S^#SS\$ NORMAL,R3
51	0000	CF	091F		MOVAL	W^INRANGE,R0
	0008	CF	0924		MOVAL	W^RETRANGE,R1
	54	04	0929		MOVZBL	S^#PRT\$C-UW,R4
	55	03	092C		MOVZBL	S^#PRT\$C-KR,R5
56	002C	CF	092F		MOVAL	W^PREVPR0T,R6
	08EF		0934		BSBW	SETPRTSUBR
		30	0937	662	WRITE	
			0947	663		
			0947	664		
			0947	665		
			0947	666		

MAKE A READ ONLY DEMAND ZERO PAGE AND READ REFERENCE IT

DELTVA



```
01 0028'CF B1 0947 CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
      OF 15 094C BLEQ 30042$ ;DELETE SECTION AND THEN DO A DELTVA
      00 DD 094E
      FB4B CF 7F 0950
      00 DD 0954
00000000'GF 03 FB 0956
      095D 30042$:
      53 01 3C 095D
50 0000'CF DE 0960
51 0008'CF DE 0965
      07DD 30 096A
      096D 667 MAKEVA
03 01 0028'CF CF 096D
      0973 30043$:
      0006' 0973
      0019' 0975
      0053' 0977
      0979 30045$:
      53 01 3C 0979
50 0000'CF DE 097C
51 0008'CF DE 0981
      07AD 30 0986
      0076 31 0989
      098C 30046$:
      53 01 3C 098C
      098F 30049$:
      00 DD 098F
      19 DD 0991
      FB0D CF DF 0993
      00 DD 0997
      FAFB CF DF 0999
      0000400D 8F DD 099D
      0008'CF DF 09A3
      0000'CF DF 09A7
00000000'EF 0B FB 09AB
50 0001828A 8F D1 09B2
      D4 13 09B9
      09B8
51 FA7D CF DE 09B8
      0799 30 09C0
      003C 31 09C3
      09C6 30047$:
      53 01 3C 09C6
      09C9 30044$:
      7E 7C 09C9
      00 DD 09CB
      19 DD 09CD
      7E 00 3C 09CF
      00 DD 09D2
      00 DD 09D4
      FAC2 CF 7F 09D6
      00014009 8F DD 09DA
      00 DD 09E0
      0008'CF 7F 09E2
      0000'CF 7F 09E6
00000000'GF 0C FB 09EA
50 0001828A 8F D1 09F1
      CF 13 09F8

      MOVZWL S^#SS$ NORMAL,R3
      MOVAL W^INRANGE,R0
      MOVAL W^RETRANGE,R1
      BSBW DELTVASUBR
      CASEL W^WHICHRUN,#1,#RUNMAX
      .WORD 30045$-30043$ ;IF FIRST RUN USE CRETVA.
      .WORD 30046$-30043$ ;IF SECOND USE GBL CREMAPSEC
      .WORD 30047$-30043$ ;IF THIRD USE PFN MAPPING
      MOVZWL S^#SS$ NORMAL,R3
      MOVAL W^INRANGE,R0
      MOVAL W^RETRANGE,R1
      BSBW CRETVASUBR
      BRW 30048$
      MOVZWL S^#SS$ NORMAL,R3
      PUSHL #0
      PUSHL #25
      PUSHAL W^FILENAME
      PUSHL #0
      PUSHAL W^GBLSECNAM
      PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
      PUSHAL W^RETRANGE
      PUSHAL W^INRANGE
      CALLS #8,LIB$ CREMAPSEC
      CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
      BEQL 30049$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
      MOVAL W^CRMPSCERR,R1
      BSBW CHECK1
      BRW 30048$
      MOVZWL S^#SS$ NORMAL,R3
      CLRQ -(SP)
      PUSHL #0
      PUSHL #25
      MOVZWL #0,-(SP)
      PUSHL #0
      PUSHL #0
      PUSHAL W^GBLSECNAM
      PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
      PUSHL #0
      PUSHAL W^RETRANGE
      PUSHAL W^INRANGE
      CALLS #12,G^SYSS$CRMPSC
      CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
      BEQL 30044$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
```

```
51 FA3E CF DE 09FA MOVAL W^CRMPSCERR,R1
    075A 30 09FF BSBW CHECK1
    0A02 30048$:
    0A02 668 SETPRT UR,PRVPRT=UW
50 53 01 3C 0A02 MOVZWL S^#SS$ NORMAL,R3
    0000'CF DE 0A05 MOVAL W^INRANGE,R0
51 0008'CF DE 0A0A MOVAL W^RETRANGE,R1
    54 0F 9A 0A0F MOVZBL S^#PRT$C-UR,R4
    55 04 9A 0A12 MOVZBL S^#PRT$C-UW,R5
56 002C'CF DE 0A15 MOVAL W^PREVPRDT,R6
    0809 30 0A1A BSBW SETPRTSUBR
    50 62 90 0A1D 669 (R2),R0
    0A20 670
    0A2E 671
    0A3E 672 MOVB
    NOWRITE
    READ
    DELTVA
01 0028'CF B1 0A3E CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
    0F 15 0A43 BLEQ 30053$ ;DELETE SECTION AND THEN DO A DELTVA
    00 DD 0A45
    FA51 CF 7F 0A47
    00 DD 0A4B
00000000'GF 03 FB 0A4D
    53 01 3C 0A54 30053$:
50 0000'CF DE 0A54 MOVZWL S^#SS$ NORMAL,R3
51 0008'CF DE 0A57 MOVAL W^INRANGE,R0
    06E6 30 0A5C MOVAL W^RETRANGE,R1
    0A61 BSBW DELTVASUBR
    0A64 673
    0A64 674 *****
    0A64 675 THE FOLLOWING THREE SECTIONS ARE DONE ONLY ON THE FIRST PASS,
    0A64 676 AS THE SECTIONS TEST THE READABILITY AND WRITEABILITY
    0A64 677 OF PAGES CREATED AT LINK TIME (DEFINED WITH PSECT
    0A64 678 DIRECTIVES). THESE PAGES ARE NOT AFFECTED BY CURRENT VA POINTERS
    0A64 679 AND THUS NEED ONLY BE DONE ONCE. PICKING THE FIRST PASS AS THE
    0A64 680 RECIPIENT OF THIS HONOR WAS AN ARBITRARY DECISION.
    0A64 681 *****
    0A64 682
    0A64 683 PSTX PAGE WRITABLE, CRF, NOT YET REFERENCED
    0A64 684
52 0000'CF DE 0A64 MOVAL W^WRTPAGES,R2
    0000'CF 52 D0 0A69 MOVL R2,W^INRANGE
    0004'CF 52 D0 0A6E MOVL R2,W^INRANGE+4
    0A73 686
    0A73 687
    0A83 688
    0A83 689
    0A83 690 WRITE
    SETPRT UR,PRVPRT=UW
50 53 01 3C 0A83 MOVZWL S^#SS$ NORMAL,R3
    0000'CF DE 0A86 MOVAL W^INRANGE,R0
51 0008'CF DE 0A8B MOVAL W^RETRANGE,R1
    54 0F 9A 0A90 MOVZBL S^#PRT$C-UR,R4
    55 04 9A 0A93 MOVZBL S^#PRT$C-UW,R5
56 002C'CF DE 0A96 MOVAL W^PREVPRDT,R6
    0788 30 0A9B BSBW SETPRTSUBR
    0A9E 691
    0AAC 692
    0ABC 693 NOWRITE
    READ
    SETPRT NA,PRVPRT=UR
50 53 01 3C 0ABC MOVZWL S^#SS$ NORMAL,R3
    0000'CF DE 0ABF MOVAL W^INRANGE,R0
51 0008'CF DE 0AC4 MOVAL W^RETRANGE,R1
```

```
56 54 00 9A 0AC9 MOVZBL S^#PRTSC-NA,R4
55 55 OF 9A 0ACC MOVZBL S^#PRTSC-UR,R5
002C'CF DE 0ACF MOVAL W^PREVPRDT,R6
074F 30 0AD4 BSBW SETPRTSUBR
0AD7 694
0AE5 695 NOREAD
SETPRT UW,PRVPRT=KR
50 53 01 3C 0AE5 MOVZWL S^#SS$ NORMAL,R3
0000'CF DE 0AE8 MOVAL W^INRANGE,R0
51 0008'CF DE 0AED MOVAL W^RETRANGE,R1
54 04 9A 0AF2 MOVZBL S^#PRTSC-UW,R4
55 03 9A 0AF5 MOVZBL S^#PRTSC-KR,R5
56 002C'CF DE 0AF8 MOVAL W^PREVPRDT,R6
0726 30 0AFD BSBW SETPRTSUBR
0B00 696
0B10 697 WRITE
0B10 698 PSTX READ ONLY PAGE, NOT YET REFERENCED
0B10 699
52 0000'CF DE 0B10 700 MOVAL W^RDPAGES,R2
0000'CF 52 DO 0B15 701 MOVL R2,W^INRANGE
0004'CF 52 DO 0B1A 702 MOVL R2,W^INRANGE+4
0B1F 703
0B1F 704 NOWRITE
0B2D 705 READ
0B3D 706 SETPRT UW,PRVPRT=UR
50 53 01 3C 0B3D MOVZWL S^#SS$ NORMAL,R3
0000'CF DE 0B40 MOVAL W^INRANGE,R0
51 0008'CF DE 0B45 MOVAL W^RETRANGE,R1
54 04 9A 0B4A MOVZBL S^#PRTSC-UW,R4
55 OF 9A 0B4D MOVZBL S^#PRTSC-UR,R5
56 002C'CF DE 0B50 MOVAL W^PREVPRDT,R6
06CE 30 0B55 BSBW SETPRTSUBR
0B58 707
62 62 90 0B68 708 WRITE
0B68 709 MOVB (R2),(R2)
50 53 01 3C 0B68 UR,PRVPRT=UW
0000'CF DE 0B6E MOVZWL S^#SS$ NORMAL,R3
51 0008'CF DE 0B73 MOVAL W^INRANGE,R0
54 OF 9A 0B78 MOVAL W^RETRANGE,R1
55 04 9A 0B7B MOVZBL S^#PRTSC-UR,R4
56 002C'CF DE 0B7E MOVZBL S^#PRTSC-UW,R5
06A0 30 0B83 MOVAL W^PREVPRDT,R6
0B86 710 BSBW SETPRTSUBR
0B86 711 PSTX READ ONLY PAGE - READ REFERENCE IT
0B86 712
52 0200 C2 DE 0B86 713 MOVAL ^X200(R2),R2
0000'CF 52 DO 0B88 714 MOVL R2,W^INRANGE
0004'CF 52 DO 0B90 715 MOVL R2,W^INRANGE+4
0B95 716
0B95 717 NOWRITE
0BA3 718 READ
50 62 90 0BB3 719 MOVB (R2),R0
0BB6 720 SETPRT UW,PRVPRT=UR
50 53 01 3C 0BB6 MOVZWL S^#SS$ NORMAL,R3
0000'CF DE 0BB9 MOVAL W^INRANGE,R0
51 0008'CF DE 0BBE MOVAL W^RETRANGE,R1
54 04 9A 0BC3 MOVZBL S^#PRTSC-UW,R4
55 OF 9A 0BC6 MOVZBL S^#PRTSC-UR,R5
```



```
56 002C'CF DE OBC9 MOVAL W^PREVPROT,R6
    0655 30 OBCF BSBW SETPRTSUBR
    62 62 90 OBD1 721 WRITE
    OBE1 722 MOVW (R2),(R2)
    OBE4 723 SETPRT UR,PRVPRT=UW
50 57 01 3C OBE4 MOVZWL S^#SS$ NORMAL,R3
    0000'CF DE OBE7 MOVAL W^INRANGE,R0
51 0008'CF DE OBEC MOVAL W^RETRANGE,R1
    54 0F 9A OBF1 MOVZBL S^#PRT$C UR,R4
    55 04 9A OBF4 MOVZBL S^#PRT$C UW,R5
56 002C'CF DE OBF7 MOVAL W^PREVPROT,R6
    0627 30 OBF8 BSBW SETPRTSUBR
    OBF9 724
    OBF9 725 BYPASS_PSECT_TESTS:
    OBF9 726 BYPASS_SETPRT_TESTS:
    OBF9 727 :
    OBF9 728 : CHECK CREATING THE LAST 2 PAGES OF P1 SPACE
    OBF9 729 :
    OBF9 730 : *****
    OBF9 731 : ***** THIS TEST MIGHT NOT WORK WITH THE DEBUGGER *****
    OBF9 732 : ***** ON BECAUSE THE LAST TWO PAGES OF P1 SPACE *****
    OBF9 733 : ***** NOW CONTAIN THE DEBUGGER CONTEXT AREA. *****
    OBF9 734 : *****
    OBF9 735 :
    OBF9 736 :
03 01 0028'CF CF OBF9 MAKEVA #<^X7FFFFC00>,#<^X7FFFFF00>
    0006' OC05 CASEL W^WHICHRUN,#1,#RUNMAX
    002B' OC07 30072$:
    0077' OC09 .WORD 30074$-30072$ ;IF FIRST RUN USE CRETVA.
    OC0B .WORD 30075$-30072$ ;IF SECOND USE GBL CREMAPSEC
    OC0B .WORD 30076$-30072$ ;IF THIRD USE PFN MAPPING
0000'CF 7FFFFFFC00 8F DO OC0B MOVL #<^X7FFFFFFC00>,W^INRANGE
0004'CF 7FFFFFFF00 8F DO OC14 MOVL #<^X7FFFFFFF00>,W^INRANGE+4
    53 01 3C OC1D MOVZWL S^#SS$ NORMAL,R3
50 0000'CF DE OC20 MOVAL W^INRANGE,R0
51 0008'CF DE OC25 MOVAL W^RETRANGE,R1
    0509 30 OC2A BSBW CRETVASUBR
    009A 31 OC2D BRW 30077$
0000'CF 7FFFFFFC00 8F DO OC30 30075$:
0004'CF 7FFFFFFF00 8F DO OC39 MOVL #<^X7FFFFFFC00>,W^INRANGE
    53 01 3C OC39 MOVL #<^X7FFFFFFF00>,W^INRANGE+4
    00 00 OC42 MOVZWL S^#SS$ NORMAL,R3
    19 DD OC45 30078$:
    F857 CF DF OC45 PUSHL #0
    .H DD OC47 PUSHL #25
    F849 CF DF OC49 PUSHAL W^FILENAME
    0000400D 8F DD OC4D PUSHL #0
    0008'CF DF OC4F PUSHAL W^GBLSECNAM
    0000'CF DF OC53 PUSHAL #<SEC$M_GBL!SEC$M_PERM!SEC$M_DZRO!SEC$M_WRT>
    00000000'EF 08 FB OC59 PUSHAL W^RETRANGE
50 0001828A 8F D1 OC5D PUSHAL W^INRANGE
    D4 13 OC61 CALLS #8,LIB$ CREMAPSEC
    51 F7C7 CF DE OC6F CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
    04E3 30 OC76 BEQL 30078$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
    004E 31 OC79 MOVAL W^CRMPSCERR,R1
    BSBW CHECK1
    BRW 30077$
```

```
0000'CF 7FFFFC00 8F D0 0C7C 30076$: MOVL #<X7FFFFC00>,W^INRANGE
0004'CF 7FFFFFF0 8F D0 0C85 MOVL #<X7FFFFFF0>,W^INRANGE+4
53 01 3C 0C8E MOVZWL S^#SS$ _NORMAL,R3
7E 7C 0C91 30073$: CLRQ -(SP)
00 DD 0C93 PUSHL #0
19 DD 0C95 PUSHL #25
7E 00 3C 0C97 MOVZWL #0,-(SP)
00 DD 0C9A PUSHL #0
00 DD 0C9C PUSHL #0
F7FA CF 7F 0C9E PUSHAQ W^GBLSECNAM
00014009 8F DD 0CA2 PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
00 DD 0CA8 PUSHL #0
0008'CF 7F 0CAA PUSHAQ W^RETRANGE
0000'CF 7F 0CAE PUSHAQ W^INRANGE
00000000'GF 0C FB 0CB2 CALLS #12,G^SYS$CRMPSC
50 0001828A 8F D1 0CB9 CMPL #X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
CF 13 0CC0 ;BEEN DELETED TRY CREMAPSEC AGAIN.
51 F776 CF DE 0CC2 MOVAL W^CRMPSCERR,R1
0492 30 0CC7 BSBW CHECK1
01 0028'CF B1 0CCA 737 30077$: DELTVA
0F 15 0CCF CMPW W^WHICHRUN,#RUN1
00 DD 0CD1 BLEQ 30079$ ;IF USING MAPPED SECTIONS FOR TESTS,
F7C5 CF 7F 0CD3 PUSHL #0 ;DELETE SECTION AND THEN DO A DELTVA
00 DD 0CD7 PUSHAQ W^GBLSECNAM
00000000'GF 03 FB 0CD9 PUSHL #0
0CE0 30079$: CALLS #3,G^SYS$DGBLSC
53 01 3C 0CE0 MOVZWL S^#SS$ _NORMAL,R3
50 0000'CF DE 0CE3 MOVAL W^INRANGE,R0
51 0008'CF DE 0CE8 MOVAL W^RETRANGE,R1
045A 30 0CED BSBW DELTVASUBR
50 0000'CF 7D 0CF0 738 MOVA MAKEVA W^INRANGE,R0
03 01 0028'CF CF 0CF5 739 R1,R0 ;REVERSE THE RANGE AND TRY AGAIN
0CFB CASEL W^WHICHRUN,#1,#RUNMAX
0006' 0CFB 30080$: .WORD 30082$-30080$ ;IF FIRST RUN USE CRETVA.
0023' 0CFD .WORD 30083$-30080$ ;IF SECOND USE GBL CREMAPSEC
0067' 0CFF .WORD 30084$-30080$ ;IF THIRD USE PFN MAPPING
0D01 30082$: MOVL R1,W^INRANGE
0000'CF 51 D0 0D01 MOVL R0,W^INRANGE+4
0004'CF 50 D0 0D06 MOVZWL S^#SS$ _NORMAL,R3
53 01 3C 0D0B MOVAL W^INRANGE,R0
50 0000'CF DE 0D0E MOVAL W^RETRANGE,R1
51 0008'CF DE 0D13 BSBW CRETVASUBR
041B 30 0D18 BRW 30085$
008A 31 0D1E 30083$: MOVL R1,W^INRANGE
0000'CF 51 D0 0D1E MOVL R0,W^INRANGE+4
0004'CF 50 D0 0D23 MOVZWL S^#SS$ _NORMAL,R3
53 01 3C 0D28 30086$: PUSHL #0
00 DD 0D2B PUSHL #25
19 DD 0D2D PUSHAQ W^FILENAME
F771 CF DF 0D2F
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```

      00 DD OD33
      F763 CF DF OD35
      0000400D 8F DD OD39
      0008'CF DF OD3F
      0000'CF DF OD43
      00000000'EF 0B FB OD47
50 0001828A 8F D1 OD4E
      D4 13 OD55
      51 F6E1 CF DE OD57
      03FD 30 OD5C
      0046 31 OD5F
      0000'CF 51 DO OD62
      0004'CF 53 DO OD67
      53 01 3C OD6C
      7E 7C OD6F
      00 DD OD71
      19 DD OD73
      7E 00 3C OD75
      00 DD OD78
      00 DD OD7A
      F71C CF 7F OD7C
      00014009 8F DD OD80
      00 DD OD86
      0008'CF 7F OD88
      0000'CF 7F OD8C
      00000000'GF 0C FB OD90
50 0001828A 8F D1 OD97
      CF 13 OD9E
      51 F698 CF DE ODA0
      0384 30 ODA5
      ODA8
      ODA8 740 30085$: DELTVA
      01 0028'CF B1 ODA8
      0F 15 ODA0
      00 DD ODAF
      F6E7 CF 7F ODB1
      00 DD ODB5
      00000000'GF 03 FB ODB7
      ODBE 30087$:
      53 01 3C ODBE
      50 0000'CF DE ODC1
      51 0008'CF DE ODC6
      037C 30 ODCB
      ODCE
      ODCE 741 :
      ODCE 742 : CHECK RETURN RANGE LOGIC. IF RANGE IS FORWARD, THEN RETURN RANGE IS
      ODCE 743 : FROM THE FIRST THROUGH THE LAST BYTE OF THE RANGE. IF BACKWARD, THEN
      ODCE 744 : RETURN RANGE IS FROM LAST THROUGH THE FIRST BYTE IN THE RANGE. IF
      ODCE 745 : THE RANGE IS ONE PAGE AND THE INPUT RANGE IS SPECIFIED AS 2 IDENTICAL
      ODCE 746 : ADDRESSES, THEN THE RETURN RANGE IS FORWARDS FOR P0 SPACE, BACKWARDS FOR P1.
      ODCE 747 :
      50 0014'CF 04 C1 ODCE 748 :
      03 01 0028'CF CF ODD4 749 :
      0006' ODDA 30088$:
      ODDA .WORD 30090$-30088$
      ODDA ;IF FIRST RUN USE CRETVA.

      PUSHL #0
      PUSHAL W^GBLSECNAM
      PUSHAL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
      PUSHAL W^RETRANGE
      PUSHAL W^INRANGE
      CALLS #8,LIB$ CREMAPSEC
      CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
      BEQL 30086$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
      MOVAL W^CRMPSCERR,R1
      BSBW CHECK1
      BRW 30085$

      MOVL R1,W^INRANGE
      MOVL R0,W^INRANGE+4
      MOVZWL S^#SS$ _NORMAL,R3
      30081$:
      CLRQ -(SP)
      PUSHL #0
      PUSHL #25
      MOVZWL #0,-(SP)
      PUSHL #0
      PUSHL #0
      PUSHAQ W^GBLSECNAM
      PUSHAL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
      PUSHAL #0
      PUSHAQ W^RETRANGE
      PUSHAQ W^INRANGE
      CALLS #12,G^SYS$CRMPSC
      CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
      BEQL 30081$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
      MOVAL W^CRMPSCERR,R1
      BSBW CHECK1

      CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
      BLEQ 30087$ ;DELETE SECTION AND THEN DO A DELTVA
      PUSHL #0
      PUSHAQ W^GBLSECNAM
      PUSHAL #0
      CALLS #3,G^SYS$DGBLSC
      30087$:
      MOVZWL S^#SS$ _NORMAL,R3
      MOVAL W^INRANGE,R0
      MOVAL W^RETRANGE,R1
      BSBW DELTVASUBR

      ADDL3 #4,W^SAVEND,R0 ;ADR NOT AT BEGIN OF PAGE
      MAKEVA R0,R0 ;SAME ADDRESS, P0 SPACE
      CASEL W^WHICHRUN,#1,#RUNMAX
      30088$:
      .WORD 30090$-30088$ ;IF FIRST RUN USE CRETVA.
```



```
0023' ODDC
0067' ODDE
0000'CF 50 DO ODE0
0004'CF 50 DO ODE5
53 01 3C ODEA
50 0000'CF DE ODED
51 0008'CF DE ODF2
033C 30 ODF7
008A 31 ODFA
ODFD
0000'CF 50 DO ODFD
0004'CF 50 DO OE02
53 01 3C OE07
OE0A
00 DD OE0A
19 DD OE0C
F692 CF DF OE0E
00 DD OE12
F684 CF DF OE14
0000400D 8F DD OE18
0008'CF DF OE1E
0000'CF DF OE22
00000000'EF 08 FB OE26
50 0001828A 8F D1 OE2D
D4 13 OE34
51 F602 CF DE OE36
031E 30 OE3B
0046 31 OE3E
OE41
0000'CF 50 DO OE41
0004'CF 50 DO OE46
53 01 3C OE4B
OE4E
7E 7C OE4E
00 DD OE50
19 DD OE52
7E 00 3C OE54
00 DD OE57
00 DD OE59
F63D CF 7F OE5B
00014009 8F DD OE5F
00 DD OE65
0008'CF 7F OE67
0000'CF 7F OE6B
00000000'GF 0C FB OE6F
50 0001828A 8F D1 OE76
CF 13 OE7D
51 F5B9 CF DE OE7F
02D5 30 OE84
OE87
750 30093$: DELTVA
01 0028'CF B1 OE87
OF 15 OE8C
00 DD OE8E
F608 CF 7F OE90
00 DD OE94

30090$:
MOVL R0,W*INRANGE
MOVL R0,W*INRANGE+4
MOVZWL S*SS$ NORMAL,R3
MOVAL W*INRANGE,R0
MOVAL W*RETRANGE,R1
BSBW CRETVASUBR
BRW 30093$

30091$:
MOVL R0,W*INRANGE
MOVL R0,W*INRANGE+4
MOVZWL S*SS$ NORMAL,R3

30094$:
PUSHL #0
PUSHL #25
PUSHAL W*FILENAME
PUSHL #0
PUSHAL W*GBLSECNAM
PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
PUSHAL W*RETRANGE
PUSHAL W*INRANGE
CALLS #8,LIB$ CREMAPSEC
CMPL #*X1828A,R0
BEQL 30094$
MOVAL W*CRMPSCERR,R1
BSBW CHECK1
BRW 30093$

30092$:
MOVL R0,W*INRANGE
MOVL R0,W*INRANGE+4
MOVZWL S*SS$ NORMAL,R3

30089$:
CLRQ -(SP)
PUSHL #0
PUSHL #25
MOVZWL #0,-(SP)
PUSHL #0
PUSHL #0
PUSHAQ W*GBLSECNAM
PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
PUSHL #0
PUSHAQ W*RETRANGE
PUSHAQ W*INRANGE
CALLS #12,G*SYSS$CRMPSC
CMPL #*X1828A,R0
BEQL 30089$
MOVAL W*CRMPSCERR,R1
BSBW CHECK1

:IF SECOND USE GBL CREMAPSEC
:IF THIRD USE PFN MAPPING

:IF PREVIOUS GBL SECTION HASN'T
:BEEN DELETED TRY CREMAPSEC AGAIN.

:IF PREVIOUS GBL SECTION HASN'T
:BEEN DELETED TRY CREMAPSEC AGAIN.

:DELETE SAME ADDRESS PO SPACE
:IF USING MAPPED SECTIONS FOR TESTS,
:DELETE SECTION AND THEN DO A DELTVA
```

00000000'GF	03	FB	OE96		30095\$:	CALLS	#3,G^SYSS\$DGBLSC	
	53	01	3C	OE9D		MOVZWL	S^#SS\$ NORMAL,R3	
50	0000'CF	DE	OEAO			MOVAL	W^INRANGE,R0	
51	0008'CF	DE	OEAS			MOVAL	W^RETRANGE,R1	
	029D	30	OEAA			BSBW	DELTVASUBR	
	0004'CF	D6	OEAD	751		W^INRANGE+4		;DIFFERENT ADDRESSES FORWARD
			OE81	752	INCL			;PO SPACE 1 PAGE FORWARD
03	01	0028'CF	CF	OE81		CASEL	W^WHICHRUN,#1,#RUNMAX	
			OE87		30096\$:			
		0006'	OE87			.WORD	30098\$-30096\$	;IF FIRST RUN USE CRETVA.
		0019'	OE89			.WORD	30099\$-30096\$	;IF SECOND USE GBL CREMAPSEC
		0053'	OE8B			.WORD	30100\$-30096\$	;IF THIRD USE PFN MAPPING
			OE8D		30098\$:			
	53	01	3C	OE8D		MOVZWL	S^#SS\$ NORMAL,R3	
50	0000'CF	DE	OEC0			MOVAL	W^INRANGE,R0	
51	0008'CF	DE	OEC5			MOVAL	W^RETRANGE,R1	
	0269	30	OECA			BSBW	CRETVASUBR	
	0076	31	OEC0			BRW	30101\$	
			OED0		30099\$:			
	53	01	3C	OED0		MOVZWL	S^#SS\$_NORMAL,R3	
				OED3	30102\$:			
		00	DD	OED3		PUSHL	#0	
		19	DD	OED5		PUSHL	#25	
	F5C9	CF	DF	OED7		PUSHAL	W^FILENAME	
		00	DD	OEDB		PUSHL	#0	
	F5BB	CF	DF	OEDD		PUSHAL	W^GBLSECNAM	
	0000400D	8F	DD	OEE1		PUSHL	#<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>	
	0008'CF	DF	OEE7			PUSHAL	W^RETRANGE	
	0000'CF	DF	OEEB			PUSHAL	W^INRANGE	
00000000'EF	08	FB	OEEF			CALLS	#8,LIB\$ CREMAPSEC	
50	0001828A	8F	D1	OEF6		CMPL	#^X1828A,R0	;IF PREVIOUS GBL SECTION HASN'T
		D4	13	OEF0		BEQL	30102\$	;BEEN DELETED TRY CREMAPSEC AGAIN.
	51	F539	CF	OEFF		MOVAL	W^CRMPSCERR,R1	
		0255	30	OF04		BSBW	CHECK1	
		003C	31	OF07		BRW	30101\$	
				OF0A	30100\$:			
	53	01	3C	OF0A		MOVZWL	S^#SS\$_NORMAL,R3	
				OF0D	30097\$:			
		7E	7C	OF0D		CLRQ	-(SP)	
		00	DD	OF0F		PUSHL	#0	
		19	DD	OF11		PUSHL	#25	
	7E	00	3C	OF13		MOVZWL	#0,-(SP)	
		00	DD	OF16		PUSHL	#0	
		00	DD	OF18		PUSHL	#0	
	F57E	CF	7F	OF1A		PUSHAQ	W^GBLSECNAM	
	00014009	8F	DD	OF1E		PUSHL	#<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>	
		00	DD	OF24		PUSHL	#0	
	0008'CF	7F	OF26			PUSHAQ	W^RETRANGE	
	0000'CF	7F	OF2A			PUSHAQ	W^INRANGE	
00000000'GF	0C	FB	OF2E			CALLS	#12,G^SYSS\$CRMPSC	
50	0001828A	8F	D1	OF35		CMPL	#^X1828A,R0	;IF PREVIOUS GBL SECTION HASN'T
		CF	13	OF3C		BEQL	30097\$	;BEEN DELETED TRY CREMAPSEC AGAIN.
	51	F4FA	CF	OF3E		MOVAL	W^CRMPSCERR,R1	
		0216	30	OF43		BSBW	CHECK1	
				OF46	30101\$:			
				OF46	753	DELTV		;PO SPACE 1 PAGE FORWARD

```
01 0028'CF B1 0F46 CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
      OF 15 0F4B BLEQ 30103$ ;DELETE SECTION AND THEN DO A DELTV
      00 DD 0F4D
      F549 CF 7F 0F4F
      00 DD 0F53
00000000'GF 03 FB 0F55
      OF5C 30103$:
      OF5C MOVZWL S^SS$ NORMAL,R3
50 0000'CF 3C 0F5F MOVL W^INRANGE,R0
51 0008'CF DE 0F64 MOVL W^RETRANGE,R1
      01DE 30 0F69 BSBW DELTVASUBR
50 0000'CF 7D 0F6C 754 MOVQ ;REVERSE THE RANGE
      OF71 755 MAKEVA R1,R0 ;1 PAGE BACKWARDS, PO SPACE
03 01 0028'CF CF 0F71 CASEL W^WHICHRUN,#1,#RUNMAX
      OF77 30104$:
      OF77 .WORD 30106$-30104$ ;IF FIRST RUN USE CRETVA.
      OF79 0006' OF79 .WORD 30107$-30104$ ;IF SECOND USE GBL CREMAPSEC
      OF7B 0023' OF7B .WORD 30108$-30104$ ;IF THIRD USE PFN MAPPING
      OF7D 0067'
0000'CF 51 DO 0F7D
0004'CF 50 DO 0F82
      53 01 3C 0F87
50 0000'CF DE 0F8A
51 0008'CF DE 0F8F
      019F 30 0F94
      008A 31 0F97
      OF9A 30107$:
      OF9A MOVL R1,W^INRANGE
      OF9F MOVL R0,W^INRANGE+4
      53 01 3C 0FA4 MOVZWL S^SS$ NORMAL,R3
      OFA7 30110$:
      OFA7 PUSHL #0
      OFA9 PUSHL #25
      F4F5 CF DF OFAB PUSHAL W^FILENAME
      00 DD OFAF PUSHL #0
      F4E7 CF DF OFB1 PUSHAL W^GBLSECNAM
      0000400D 8F DD OFB5 PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
      0008'CF DF OFBB PUSHAL W^RETRANGE
      0000'CF DF OFBF PUSHAL W^INRANGE
00000000'EF 08 FB 0FC3 CALLS #8,LIB$ CREMAPSEC
50 0001828A 8F D1 0FCA CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
      04 13 0FD1 BEQL 30110$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
51 F465 CF DE 0FD3 MOVL W^CRMPSCERR,R1
      0181 30 0FDB BSBW CHECK1
      0046 31 0FDB BRW 30109$
      OFDE 30108$:
      OFDE MOVL R1,W^INRANGE
      OFE3 MOVL R0,W^INRANGE+4
      53 01 3C 0FE8 MOVZWL S^SS$ NORMAL,R3
      OFEB 30105$:
      OFEB CLRQ -(SP)
      OFED PUSHL #0
      OFEF PUSHL #25
      7E 00 3C OFF1 MOVZWL #0,-(SP)
      00 DD OFF4 PUSHL #0
      00 DD OFF6 PUSHL #0
      F4A0 CF 7F OFF8 PUSHAQ W^GBLSECNAM
```



```
00014009 8F DD OFFC          PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
          00 DD 1002          PUSHL #0
          0008 CF 7F 1004      PUSHAQ W^RETRANGE
          0000 CF 7F 1008      PUSHAQ W^INRANGE
00000000 GF 0C FB 100C        CALLS #12,G^SYSSCRMPSC
50 0001828A 8F D1 1013        CMPL #^X1828A,R0
          CF 13 101A          BEQL 30105$
51 F41C CF DE 101C          MOVAL W^CRMPSCERR,R1
          0138 30 1021        BSBW CHECK1
                                30109$:
                                DELTA
01 0028 CF B1 1024          CMPW W^WHICHRUN,#RUN1
          OF 15 1029          BLEQ 30111$
          00 DD 102B          PUSHL #0
          F46B CF 7F 102D      PUSHAQ W^GBLSECNAM
          00 DD 1031          PUSHL #0
00000000 GF 03 FB 1033        CALLS #3,G^SYSSDGBLSC
          53 01 3C 103A        MOVZWL S^#SS$ NORMAL,R3
50 0000 CF DE 103D          MOVAL W^INRANGE,R0
51 0008 CF DE 1042          MOVAL W^RETRANGE,R1
          0100 30 1047        BSBW DELTASUBR
50 000C CF D0 104A          MOVL W^RETRANGE+4,R0
          757 758             RO,R0
03 01 0028 CF CF 104F        CASEL W^WHICHRUN,#1,#RUNMAX
                                30112$:
                                .WORD 30114$-30112$
                                .WORD 30115$-30112$
                                .WORD 30116$-30112$
                                30114$:
                                MOVL RO,W^INRANGE
                                MOVL RO,W^INRANGE+4
                                MOVZWL S^#SS$ NORMAL,R3
                                MOVAL W^INRANGE,R0
                                MOVAL W^RETRANGE,R1
                                BSBW CRETVASUBR
                                BRW 30117$
                                30115$:
                                MOVL RO,W^INRANGE
                                MOVL RO,W^INRANGE+4
                                MOVZWL S^#SS$ NORMAL,R3
                                30118$:
                                PUSHL #0
                                PUSHL #25
                                PUSHAL W^FILENAME
                                PUSHL #0
                                PUSHAL W^GBLSECNAM
                                PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
                                PUSHAL W^RETRANGE
                                PUSHAL W^INRANGE
                                CALLS #8,LIB$ CREMAPSEC
                                CMPL #^X1828A,R0
                                BEQL 30118$
                                MOVAL W^CRMPSCERR,R1
                                BSBW CHECK1
                                BRW 30117$
                                30116$:
                                0006 1055
                                0023 1057
                                0067 1059
                                105B
                                0000 CF 50 D0 105B
                                0004 CF 50 D0 1060
                                53 01 3C 1065
50 0000 CF DE 1068
51 0008 CF DE 106D
          00C1 30 1072
          008A 31 1075
          1078
0000 CF 50 D0 1078
0004 CF 50 D0 107D
          53 01 3C 1082
          1085
          00 DD 1085
          19 DD 1087
          F417 CF DF 1089
          00 DD 108D
          F409 CF DF 108F
0000400D 8F DD 1093
          0008 CF DF 1099
          0000 CF DF 109D
00000000 EF 08 FB 10A1
50 0001828A 8F D1 10A8
          D4 13 10AF
51 F387 CF DE 10B1
          00A3 30 10B6
          0046 31 10B9
          10BC
```

0000'CF	50	DD	10BC		MOVL	R0,W^INRANGE	
0004'CF	50	DD	10C1		MOVL	R0,W^INRANGE+4	
53	01	3C	10C6		MOVZWL	S^#SS\$ _NORMAL,R3	
			10C9	30113\$:			
	7E	7C	10C9		CLRQ	-(SP)	
	00	DD	10CB		PUSHL	#0	
	19	DD	10CD		PUSHL	#25	
7E	00	3C	10CF		MOVZWL	#0,-(SP)	
	00	DD	10D2		PUSHL	#0	
	00	DD	10D4		PUSHL	#0	
F3C2	CF	7F	10D6		PUSHAQ	W^GBLSECNAM	
00014009	8F	DD	10DA		PUSHL	#<SEC\$M_GBL!SEC\$M_PERM!SEC\$M_PFNMAP!SEC\$M_WRT>	
	00	DD	10E0		PUSHL	#0	
0008'CF	7F	7F	10E2		PUSHAQ	W^RETRANGE	
0000'CF	7F	7F	10E6		PUSHAQ	W^INRANGE	
00000000'GF	0C	FB	10EA		CALLS	#12,G^SYSSCRMPSC	
50	0001828A	8F	D1	10F1	CMPL	#^X1828A,R0	:IF PREVIOUS GBL SECTION HASN'T
	CF	13	10F8		BEQL	30113\$	:BEEN DELETED TRY CREMAPSEC AGAIN.
51	F33E	CF	DE	10FA	MOVAL	W^CRMPSCERR,R1	
	005A	30	10FF		BSBW	CHECK1	
			1102	30117\$:			
01	0028'CF	B1	1102	759 DELTVA	CMPL	W^WHICHRUN,#RUN1	:DELETE 1 PAGE P1 SPACE
	0F	15	1107		BLEQ	30119\$	:IF USING MAPPED SECTIONS FOR TESTS,
	00	DD	1109		PUSHL	#0	:DELETE SECTION AND THEN DO A DELTVA
F38D	CF	7F	110B		PUSHAQ	W^GBLSECNAM	
	00	DD	110F		PUSHL	#0	
00000000'GF	03	FB	1111		CALLS	#3,G^SYSDGBLSC	
			1118	30119\$:			
53	01	3C	1118		MOVZWL	S^#SS\$ _NORMAL,R3	
50	0000'CF	DE	111B		MOVAL	W^INRANGE,R0	
51	0008'CF	DE	1120		MOVAL	W^RETRANGE,R1	
	0022	30	1125		BSBW	DELTVASUBR	
			1128	760			
			1128	761	:		
			1128	762	:END OF LOOP		
			1128	763	:		
03 0020'CF	001C'CF	F3	1128	764	AOBLEQ	W^MAXPASSCNT,W^PASSCNT,160\$	
	F3D4	31	1130	765	150\$: BRW	MAIN_PROGRAM	
			1133	766			
	F51A	31	1133	767	160\$: BRW	RSTART	
			1136	768			

```
1136 770 .SBTTL SUBROUTINES TO CALL THE SERVICES
1136 771 :
1136 772 : INPUT:
1136 773 :
1136 774 R0 = INADR
1136 775 R1 = RETADR
1136 776 R3 = DESIRED STATUS
1136 777 :
1136 778 : OUTPUT:
1136 779 :
1136 780 R2 PRESERVED
1136 781 :
1136 782 CRETVASUBR:
1136 783 $CRETVA_S (R0),(R1)
51 F2DD CF DE 1136 784 MOVAL W^CRETVAERR,R1 ;ERROR CONTROL STRING
1136 785 BRB CHECK1
1136 786 :
1136 787 : INPUT:
1136 788 :
1136 789 R0 = INADR
1136 790 R1 = RETADR
1136 791 R3 = DESIRED STATUS
1136 792 :
1136 793 : OUTPUT:
1136 794 :
1136 795 R2 PRESERVED
1136 796 :
1136 797 DELTVASUBR:
51 F2D1 CF DE 1136 798 $DELTVA_S (R0),(R1)
1136 799 MOVAL W^DELTVAERR,R1 ;ERROR CONTROL STRING
1136 800 CHECK1:
53 50 D1 1136 801 CMPL R0,R3 ;STATUS AS DESIRED
1136 802 BEQL 10$ ;BRANCH IF YES
53 0244 8F B1 1136 803 CMPW #SS$_VASFULL,R3 ;IF EXPECTING VIRTUAL ADDRESS
1136 804 BNEQ 15$ ;SPACE FULL THEN EXCEEDS
50 1C B1 1136 805 CMPW #SS$_EXQUOTA,R0 ;QUOTA MAY ALSO BE RETURNED
1136 806 BEQL 10$
1136 807 BRB 5$
1136 808 15$:
53 01 B1 1136 809 CMPW #SS$_NORMAL,R3 ;IF EXPECTING NORMAL
1136 810 BNEQ 5$ ;COMPLETION FOR CRMPSC
50 0619 8F B1 1136 811 CMPW #SS$_CREATED,R0 ;THEN GLOBAL SECTION CREATED
1136 812 BEQL 10$ ;MAY BE RETURNED
54 04 AE DD 1136 813 5$:
1136 814 PUSHL R4 ;ADDRESS OF ERROR
1136 815 MOVL 4(SP),R4
1136 816 $FAO_S (R1),MSGLEN,MSGBUFD,R4,R0,R3,-
1136 817 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
1136 818 POPR #^M<R4>
1136 819 BSBW TYPEMSGBUF
1136 820 10$:
1136 821 BRW RANGECHK ;GO CHECK THE RETURN RANGE
1136 822 :
1136 823 : INPUT:
1136 824 :
1136 825 R1 = RETADR
1136 826 R3 = DESIRED STATUS
```



```
1180 827 : R4 = PAGCNT
1180 828 : R5 = REGION
1180 829 :
1180 830 : OUTPUT:
1180 831 :
1180 832 : R2 PRESERVED
1180 833 :
1180 834 EXPREGSUBR:
1180 835 $EXPREG_S R4,(R1),R5
1180 836 MOVAL W^EXPREGERR,R1 ;ERROR CONTROL STRING
51 F264 CF DE 11CC 837 CHECK2:
1180 838 CMPL R0,R3 ;STATUS AS DESIRED?
1180 839 BEQL 10$ ;BRANCH IF YES
1180 840 PUSHL R6
1180 841 MOVL 4(SP),R6 ;ADDRESS OF ERROR
1180 842 $FAO_S (R1),MSGLEN,MSGBUFD,R6,R0,R3,R4,R5,-
1180 843 RETRANGE,RETRANGE+4
1180 844 POPR #^M<R6>
1180 845 BSBW TYPEMSGBUF
1180 846 RSB
1180 847 10$: MOVL W^RETRANGE,W^INRANGE ;MAKE INPUT RANGE LOOK
1180 848 DECL R4 ;LIKE CRETVA/DELTVA
1180 849 ASHL #9,R4,R4
1180 850 ADDL3 R4,W^INRANGE,W^INRANGE+4
1180 851 BRB RANGECHK ;AND CHECK THE RETURN RANGE
1180 852 :
1180 853 : INPUT:
1180 854 :
1180 855 : R0 = INADR
1180 856 : R1 = RETADR
1180 857 : R3 = DESIRED STATUS
1180 858 : R4 = PROTECTION TO BE SET
1180 859 : R5 = DESIRED PREVIOUS PROTECTION (104 MEANS NOT SPECIFIED)
1180 860 : R6 = ADDRESS TO RETURN PREVIOUS PROTECTION
1180 861 :
1180 862 : OUTPUT:
1180 863 :
1180 864 : R2 PRESERVED
1180 865 :
1180 866 $ETPRTSUBR:
1180 867 $ETPRT_S (R0),(R1),R4,(R6)
1180 868 IFNOWRT-#1,(R6),10$ ;SKIP PREVIOUS PROTECTION CHECK
1180 869 ;IF IT WASN'T RETURNED
1180 870 CMPB #104,R5 ;OR IF IT WASN'T SPECIFIED
1180 871 BEQL 10$
1180 872 CMPB R5,(R6) ;OTHERWISE CHECK IT
1180 873 BNEQ 20$ ;AND BRANCH IF IT'S WRONG
1180 874 10$: CMPL R0,R3 ;STATUS = DESIRED STATUS?
1180 875 BEQL 30$ ;BRANCH IF YES
1180 876 20$:
1180 877 PUSHL R7
1180 878 MOVL 4(SP),R7 ;ADDRESS OF ERROR
1180 879 $FAO_S SETPRTERR,MSGLEN,MSGBUFD,R7,R0,R3,-
1180 880 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4,-
1180 881 PREVPROT,R5
1180 882
1180 883 POPL R7
55 10 91 123D 870 CMPB #104,R5
66 05 13 1240 871 BEQL 10$
55 55 91 1242 872 CMPB R5,(R6)
66 05 12 1245 873 BNEQ 20$
53 50 D1 1247 874 10$: CMPL R0,R3
4A 13 124A 875 BEQL 30$
57 57 DD 124C 877 20$: PUSHL R7
04 AE DO 124E 878 MOVL 4(SP),R7
57 8ED0 1252 880 $FAO_S SETPRTERR,MSGLEN,MSGBUFD,R7,R0,R3,-
1252 881 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4,-
1252 882 PREVPROT,R5
128F 883 POPL R7
```

```
007B 30 1292 884 BSBW TYPMSGBUF
      05 1295 885 RSB
      1296 886 30$:
      1296 887 RANGECHK:
73 0010'CF 03 E1 1296 888 BBC #CTL$V_RNGCHK,W^CTLFLG,40$ ;BRANCH IF RANGE CHECK DISABLED
      70 50 E9 129C 889 BLBC R0,40$ ;IF ERROR IN SERVICE, SKIP RANGE CHK
50 0000'CF 7D 129F 890 MOVQ W^INRANGE,R0 ;R0 = STARVA, R1 = ENDVA
      51 50 D1 12A4 891 CMPL R0,R1 ;WHICH DIRECTION?
      12 1A 12A7 892 BGTRU 10$ ;BRANCH IF BACKWARDS
      04 1F 12A9 893 BLSSU 5$ ;BRANCH IF FORWARDS
      OC 50 1E E0 12AB 894 BBS #30,R0,10$ ;FOR EQUAL, P0 SPACE FORWARDS, P1 BA
      12AF 895 ;
      12AF 896 ; REQUESTED RANGE IS FORWARDS
      12AF 897 ;
50 01FF 8F AA 12AF 898 5$: BICW #^X1FF,R0 ;FROM BYTE 0 OF STARTVA
51 01FF 8F A8 12B4 899 BISW #^X1FF,R1 ;THROUGH LAST BYTE OF ENDVA
      OA 11 12B9 900 BRB 20$ ;
      12BB 901 ;
      12BB 902 ; GOING BACKWARDS IN VIRTUAL ADDRESS SPACE
      12BB 903 ;
50 01FF 8F A8 12BB 904 10$: BISW #^X1FF,R0 ;LAST BYTE OF STARTVA
51 01FF 8F AA 12C0 905 BICW #^X1FF,R1 ;THROUGH FIRST BYTE OF ENDVA
0008'CF 50 D1 12C5 906 20$: CMPL R0,W^RETRANGE ;IS THIS WHAT WAS RETURNED?
      07 12 12CA 907 BNEQ 30$ ;BRANCH IF NOT, ERROR
000C'CF 51 D1 12CC 908 CMPL R1,W^RETRANGE+4 ;THIS ONE OK TOO?
      3C 13 12D1 909 BEQL 40$ ;BRANCH IF YES, RANGE OK
      53 DD 12D3 910 30$: PUSHL R3 ;SAVE REGISTER
53 04 AE D0 12D5 911 MOVL 4(SP),R3 ;TO USE FOR ERROR PC
      12D9 912 $FAO_S <W^RANGERR>,MSGLEN,MSGBUFD,R3,- ;FORMAT THE ERROR MESSAGE
      12D9 913 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
      08 BA 130A 914 POPR #^M<R3> ;RESTORE SAVE REGISTER
0001 30 130C 915 BSBW TYPMSGBUF ;OUTPUT THE ERROR MESSAGE
      05 130F 916 40$: RSB ;AND RETURN
```

```
1310 918 .SBTTL MISCELLANEOUS SUBROUTINES
1310 919 :
1310 920 : TYPE A MESSAGE
1310 921 : MSGBUF IS THE ADDRESS OF THE BEGINNING OF THE STRING
1310 922 : MSGLEN CONTAINS THE SIZE (IN BYTES) OF THE STRING
1310 923 :
1310 924 : TYPEMSGBUF:
1310 925 : MOVL W^MSGLEN,R0 ;SIZE TO R0
1310 926 : MOVAL W^MSGBUF,R1 ;ADDRESS TO R1
1310 927 : BBC #CTL$V PIDMSG,W^CTLFLG,5$ ;BRANCH IF NO PROCESS ID REQUIRED
1310 928 : MOVAL W^MSGBUFID,R1 ;ADDRESS INCLUDING PID MSG
1310 929 : ADDL S^#<MSGBUF-MSGBUFID>,R0 ;INCLUDE EXTRA BYTES IN COUNT
1310 930 5$:
1310 931 : MOVL R1,W^RAB+RAB$L_RBF ;SET BUFFER ADDRESS
1310 932 : MOVW R0,W^RAB+RAB$W_RSZ ;AND SIZE
1310 933 : $PUT W^RAB ;OUTPUT THE MESSAGE
1310 934 : BLBC R0,20$
1310 935 : RSB
1310 936 20$: $EXIT,S R0 ;EXIT WITH ERROR STATUS
1310 937 :
1310 938 : INPUTS:
1310 939 :
1310 940 : 0(SP) = ADDRESS OF ERROR
1310 941 : R1 = ADDRESS OF FORMAT CONTROL STRING
1310 942 :
1310 943 : OUTPUTS:
1310 944 :
1310 945 : R2 PRESERVED
1310 946 :
1310 947 : PROBERR:
1310 948 : PUSHL R5
1310 949 : MOVL 4(SP),R5
1310 950 : $FAO,S (R1),MSGLEN,MSGBUFD,R5
1310 951 : POPR #^M<R5>
1310 952 : BSBW TYPEMSGBUF
1310 953 : RSB
1310 954 :
1310 955 :
1310 956 : .END START
```

50 00C0'CF DO  
51 00E2'CF DE  
08 0010'CF 02 E1  
51 00D4'CF DE  
50 0E' CO  
00A4'CF 51 DO  
009E'CF 50 BO  
01 50 E9  
05  
55 55 DD  
55 04 AE DO  
20 BA  
FFA4 30  
05



MMGCRDLSP  
Symbol table

M 3

- TEST OF \$CRETVA/\$DELTVA/\$SETPRT SYSTEM 16-SEP-1984 01:57:53 VAX/VMS Macro V04-00 Page 33  
5-SEP-1984 01:57:57 [MMGTST.SRC]MMGCRDLSP.MAR;1 (8)

\$\$TAB	= 0000007C	R	02	GBLSECNAMSIZ	= 00000006		
\$\$TABEND	= 000000C0	R	02	GBL_SEC_MESSAGE	00000548	R	05
\$\$TMP	= 00000000			IDMSG	00000474	R	05
\$\$TMP1	= 00000001			IDMSGADR	00000312	R	05
\$\$TMP2	= 000000CF			IDMSGISZ	= 00000039		
\$\$T1	= 00000000			INIT_START	0000058C	R	05
\$\$T2	= 00000004			INRANGE	00000000	R	02
BIT...	= 00000004			L50	00000526	R	05
BYPASS_PSECT_TESTS	00000BFF	R	05	LIB\$_CREMAPSEC	*****	X	05
BYPASS_SETPRT_TESTS	00000BFF	R	05	MAIN_PROGRAM	00000507	R	05
CHECK1	0000115C	R	05	MAXPASSCNT	0000001C	R	02
CHECK2	000011D1	R	05	MAXWHICHRUN	00000024	R	02
CODEPAGES	00000000	R	05	MSGBUF	000000E2	R	02
CRETVAERR	00000424	R	05	MSGBUFD	000000C4	R	02
CRETVAERRADR	0000000A	R	05	MSGBUFD	000000D4	R	02
CRETVAERRSIZ	= 00000063			MSGBUFSIZ	= 000000A0		
CRETVASUBR	00001136	R	05	MSGLEN	000000C0	R	02
CRETVA_MESSAGE	0000052C	R	05	NOREADERR	00000454	R	05
CRLF	000000D4	R	02	NOREADERRADR	00000258	R	05
CRMPSCERR	0000043C	R	05	NOREADERRSIZ	= 00000024		
CRMPSCERRADR	000000D0	R	05	NOWRITERR	00000464	R	05
CRMPSCERRSIZ	= 00000063			NOWRITERRADR	0000029E	R	05
CTLSM_MEMLOOP	= 00000001			NOWRITERRSIZ	= 00000025		
CTLSM_PIDMSG	= 00000004			OUTNAMADR	00000000	R	05
CTLSM_RNGCHK	= 00000008			OUTNAMSIZ	= 0000000A		
CTLSM_TSTLOOP	= 00000002			PASSCNT	00000020	R	02
CTLSV_MEMLOOP	= 00000000			PFNMAP_MESSAGE	0000056A	R	05
CTLSV_PIDMSG	= 00000002			PID	00000018	R	02
CTLSV_RNGCHK	= 00000003			PIDCTL	00000494	R	05
CTLSV_TSTLOOP	= 00000001			PIDCTLADR	00000410	R	05
CTLFLG	00000010	R	02	PIDCTLSIZ	= 00000003		
DELTVAERR	0000042C	R	05	PIDMSG	000000DE	R	02
DELTVAERRADR	0000006D	R	05	PIDMSGD	000000CC	R	02
DELTVAERRSIZ	= 00000063			PRESTART	00000520	R	05
DELTVASUBR	0000114A	R	05	PREVPROT	0000002C	R	02
END	00000514	R	05	PROBERR	0000134A	R	05
EXPREGERR	00000434	R	05	PRTSC_KR	= 00000003		
EXPREGERRADR	00000133	R	05	PRTSC_NA	= 00000000		
EXPREGERRSIZ	= 00000072			PRTSC_NONE	= 00000010		
EXPREGSUBR	000011BD	R	05	PRTSC_UR	= 0000000F		
FAB	0000002C	R	02	PRTSC_UW	= 00000004		
FAB\$C_BID	= 00000003			RAB	0000007C	R	02
FAB\$C_BLN	= 00000050			RAB\$B_RAC	= 0000001E		
FAB\$C_SEQ	= 00000000			RAB\$C_BID	= 00000001		
FAB\$C_VAR	= 00000002			RAB\$C_BLN	= 00000044		
FAB\$C_ALQ	= 00000010			RAB\$C_SEQ	= 00000000		
FAB\$C_FOP	= 00000004			RAB\$C_CTX	= 00000018		
FAB\$V_CHAN_MODE	= 00000002			RAB\$C_RBF	= 00000028		
FAB\$V_FILE_MODE	= 00000004			RAB\$C_ROP	= 00000004		
FAB\$V_LNM_MODE	= 00000000			RAB\$W_RSZ	= 00000022		
FAB\$V_PUT	= 00000000			RANGECHK	00001296	R	05
FAB\$W_GBC	= 00000048			RANGERR	0000046C	R	05
FILENAME	000004A4	R	05	RANGERRADR	000002C3	R	05
FILENAMEADR	00000419	R	05	RANGERRSIZ	= 0000004F		
FILENAMESIZ	= 0000000A			RDPAGES	00000000	R	04
GBLSECNAM	0000049C	R	05	READERR	0000044C	R	05
GBLSECNAMADR	00000413	R	05	READERRADR	00000237	R	05

MMGCRDLSP  
Symbol table

- TEST OF \$CRETVA/\$DELTVA/\$SETPRT<sup>N 3</sup> SYSTEM 16-SEP-1984 01:57:53 VAX/VMS Macro V04-00 Page 34  
5-SEP-1984 01:57:57 [MMGTST.SRC]MMGCRDLSP.MAR;1 (8)

READERRSIZ	= 00000021		
RETRANGE	00000008	R	02
RSTART	00000650	R	05
RUN1	= 00000001		
RUN1_MSG	0000047C	R	05
RUN1_MSGADR	0000034B	R	05
RUN1_MSGSIZ	= 00000043		
RUN2	= 00000002		
RUN2_MSG	00000484	R	05
RUN2_MSGADR	0000038E	R	05
RUN2_MSGSIZ	= 00000044		
RUN3_MSG	0000048C	R	05
RUN3_MSGADR	000003D2	R	05
RUN3_MSGSIZ	= 0000003E		
RUNMAX	= 00000003		
SAVEND	00000014	R	02
SECSM_DZRO	= 00000004		
SECSM_GBL	= 00000001		
SECSM_PERM	= 00004000		
SECSM_PFNMAP	= 00010000		
SECSM_WRT	= 00000008		
SETPRTERR	00000444	R	05
SETPRTERRADR	000001A5	R	05
SETPRTERRSIZ	= 00000092		
SETPRTSUBR	00001226	R	05
SIZ...	= 00000001		
SS\$_CREATED	= 00000619		
SS\$_EXQUOTA	= 0000001C		
SS\$_NORMAL	= 00000001		
SS\$_VAFULL	= 00000244		
START	000004AC	R	05
SYSSCONNECT	*****	GX	05
SYSSCRETVA	*****	GX	05
SYSSCRMPSC	*****	GX	05
SYSSDELTVA	*****	GX	05
SYSSDGBLSC	*****	GX	05
SYSEXIT	*****	GX	05
SYSEXPREG	*****	GX	05
SYSSFAO	*****	X	05
SYSSOPEN	*****	GX	05
SYSSPUT	*****	GX	05
SYSSRESUME	*****	GX	05
SYSSSETPRT	*****	GX	05
TYPEMSGBUF	00001310	R	05
WHICHRUN	00000028	R	02
WRITERR	0000045C	R	05
WRITERRADR	0000027C	R	05
WRITERRSIZ	= 00000022		
WRTPAGES	00000000	R	03



+-----+  
! Psect synopsis !  
+-----+

PSECT name	Allocation	PSECT No.	Attributes
ABS	00000000 ( 0.)	00 ( 0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
\$ABSS	00000000 ( 0.)	01 ( 1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
DATA0	00000182 ( 386.)	02 ( 2.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC PAGE
DATA1	00000800 ( 2048.)	03 ( 3.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC PAGE
DATA2	00000800 ( 2048.)	04 ( 4.)	NOPIC USR CON REL LCL NOSHR NOEXE RD NOWRT NOVEC PAGE
CODE	00001360 ( 4973.)	05 ( 5.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC PAGE

+-----+  
! Performance indicators !  
+-----+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	16	00:00:00.09	00:00:00.72
Command processing	122	00:00:00.91	00:00:06.54
Pass 1	522	00:00:18.13	00:00:51.20
Symbol table sort	0	00:00:01.45	00:00:03.52
Pass 2	284	00:00:05.01	00:00:21.81
Symbol table output	20	00:00:00.17	00:00:00.73
Psect synopsis output	3	00:00:00.04	00:00:00.24
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	969	00:00:25.82	00:01:24.78

The working set limit was 1950 pages.  
149717 bytes (293 pages) of virtual memory were used to buffer the intermediate code.  
There were 50 pages of symbol table space allocated to hold 908 non-local and 139 local symbols.  
956 source lines were read in Pass 1, producing 33 object records in Pass 2.  
59 pages of virtual memory were used to define 47 macros.

+-----+  
! Macro library statistics !  
+-----+

Macro library name	Macros defined
_\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	2
_\$255\$DUA28:[SYSLIB]STARLET.MLB;2	29
TOTALS (all libraries)	31

1170 GETS were required to define 31 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:MMGCRDLSP/OBJ=OBJ\$:MMGCRDLSP MSRC\$:MMGCRDLSP/UPDATE=(ENH\$:MMGCRDLSP)+EXECMLS/LIB



0236

AH-BT13A-SE  
 VAX/VMS V4.0

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